HILL
MEMORIAL LIBRARY
LOUISIANA
STATE UNIVERSITY
and
AGRICULTURAL & MECHANICAL
COLLEGE

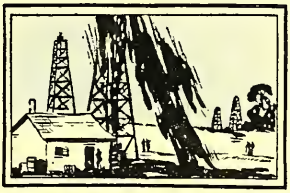
LOUISIANA ROOM

NEW METHOD
BOOK BINDERY INC.

Digitized by the Internet Archive
in 2010 with funding from
Lyrasis Members and Sloan Foundation

http://www.archive.org/details/louisianaconserv44depa

Louisiana Conservation REVIEW



IN THIS ISSUE

Conservation of Louisiana's Minerals
by
Cyril K. Moresi, M. S.

The Thousandth Acre
by
R. D. Forbes

The Birds Are Going South
by
Dr. T. Gilbert Pearson

Westward from Canaan
by
Catherine B. Dillon

The Commercial Fisheries of Louisiana
by
N. E. Simoneaux

Published Quarterly by the
DEPARTMENT OF CONSERVATION

OCTOBER
1934

American Creosote Works, Inc.
NEW ORLEANS, LA.

CREOSOTED CONSTRUCTION and HIGHWAY MATERIALS OF EVERY DESCRIPTION

ALSO WOLMANIZED LUMBER— DECAY AND TERMITE PROOF— CAN BE PAINTED

PRIVATE FREE WHARF FOR OCEAN VESSELS AT NEW ORLEANS

Capacity 100,000,000 Bd. Ft. Annually

Plants at:
New Orleans, La. Winnfield, La.
Louisville, Miss. and Jackson, Tenn.

PAINTS—GLASS

Alabastine, Bondex, Sealerine, Acme Quality Paints, Koverfloor, Varnishes, Lacquer, Brushes, Removers, Stain-Ox, Valspar, Plastex

"Everything in the Paint and Glass Line"

David Bernhardt Paint Co.

317-319-321-323 Camp Street
New Orleans, Louisiana
RAymond 5279 RAymond 5270

"We Have No Branches"

Bernstein Bros.

Wholesale Raw Fur Dealers

209 Decatur St.
NEW ORLEANS, LA.
Cable Address
"BERNBRO"

NEW YORK OFFICE
226 West 26th St.
Cable Address
"BERNBOFUR"

SOLARI'S

Everybody Shops

—at—

SOLARI'S

Natural Gas----

THE IDEAL SERVANT

INDEED fortunate is the community where an abundant supply of Natural Gas—the Modern Fuel—is available for home and factory.

Not only does this 24-hour-a-day servant lighten the burden of daily household duties—cooking, water-heating and house-heating—but it serves to attract new residents and new enterprises to the favored section.

The growth and prosperity of this area is of vital concern to us, and we are constantly planning and working to keep a pace ahead of every fuel demand.

UNITED GAS PUBLIC SERVICE COMPANY

A Unit of the United Gas System

LOUISIANA CONSERVATION REVIEW

Published by the

DEPARTMENT OF CONSERVATION

ROB'T S. MAESTRI, Commissioner JAMES P. GUILLOT, Secretary

DR. J. A. SHAW
Director, Division of Mines and Minerals

ARMAND P. DASPIT
Director, Division of Fur and Wild Life

V. H. SONDEREGGER
Forester and Director, Division of Forestry

JAMES N. MCCONNELL
Director, Division of Oysters and Water Bottoms

J. B. DAUENHAUER, JR.
Director, Division of Enforcement and Fisheries

PHILIP A. GEHLBACH
Supt. of Department's Flotilla

JAMES P. GUILLOT
Acting Director, Bureau of Scientific Research and Statistics

JAMES N. GOWANLOCH
Chief Biologist, Bureau of Scientific Research and Statistics

RICHARD B. OTERO, LL.D.
Director, Bureau of Education

MRS. ESTELLE COTTMAN
Assistant Director, Bureau of Education

VOL. IV NEW ORLEANS, LA., OCTOBER, 1934 No. 4

Conservation Minerals Division Moves to New Orleans

THE rising importance of South Louisiana as a mineral producing area has brought about the transfer of the Minerals Division of the Department of Conservation from Shreveport, Louisiana, to New Orleans. A year ago, Commissioner Robert S. Maestri recognized this tremendous regional development by the establishment of a District Office in New Orleans, and since that time, the still further increase in oil, sulphur and gas explorations and discoveries have made desirable the move which has now been completed. This action has already met with wide approval and appreciation on the part of those concerned with mineral development.

Not only is the matter of the production of minerals themselves involved. Further important problems have arisen affecting other industries. The drilling of oil wells and salt domes has had much and sometimes serious effect on the fish, oysters and other aquatic life of adjacent areas. Such oil wells produce, in addition to oil, varying quantities of salt brine. This salt brine, brought to the surface from deep strata, contains various dissolved substances, and is further in such intimate contact with the oil that it has received from the petroleum certain other dispersed constituents. The release of such effluents is capable of profoundly changing the surrounding waters. The Department of Conservation has fully realized the responsibility of preventing the possible disastrous influence that the development of oil, sulphur and gas discoveries may have on the valuable fisheries and oyster resources of Louisiana. Already the Department of Conservation has conducted extensive and pioneer researches relating to these problems.

The increase in the mineral production of South Louisiana has been truly remarkable. Particularly striking has been the development of the Leeville oil field. Where only a year ago there were only three producing wells, there are today fifty-eight and additional wells are constantly being brought in. The vast sulphur deposits in the Grande Ecaille salt dome are another example of South Louisiana's mineral riches. The huge plant, constructed there by the Freeport Sulphur Company with an expenditure of in excess of four million dollars, has been in production for many months.

The change of the main offices of the Division of Mines and Minerals from Shreveport, Louisiana to New Orleans has, therefore, been not merely logical, but almost inevitable, and will further increase the contribution of the Department of Conservation to the still greater and more prosperous development of the extraordinarily rich mineral resources of our State.

Published quarterly by the Department of Conservation in the interest of protection and proper utilization of Louisiana's natural resources.

JAMES P. GUILLOT..........Editor
N. E. SIMONEAUX..........Assoc. Editor
ESTELLE V. COTTMAN......Nat. Guar. Ed.

CONTENTS

Page

Editorials 1
State Geological Survey Announced 2
Conservation of Louisiana's Mineral Resources, Part III 3
Commercial Fisheries of Louisiana .. 20
The Thousandth Acre 25
Westward from Canaan 30
The Birds Are Going South 33
Conservation of Rural Areas for Recreation 36
Louisiana Nature Guardians 39
Message to Duck Clubs 42
Department Issues New Bulletin 46
Anglers' Notes 47

"Hunter's Moon"

NOW comes the time of year to which the Indians used to give the name of "Hunter's Moon". Every faithful sportsman sets aside for awhile his rods and reels, and prepares with much oiling of guns to investigate the ways of quail, squirrel, ducks and geese.

Louisiana is amazingly excellent as a sportsmen's state. In Louisiana, too, there is developed a splendid attitude toward game. There is for example completely lacking the vicious attitude so frequent in the vicinity of many highly industrialized centers in the North where immigrants whose backgrounds are quite different from those of Americans habitually go afield on every week end and every holiday armed with small calibre rifles to kill every song bird they encounter. Louisiana from her earliest history has had the tradition of good hunting. Today the lineal descendants of the early pioneers still know the proper use of game. Louisiana is still abundantly provided with game, although as elsewhere, the wild life resources have tremendously decreased. There are reported, for example, no less than exactly 30 different species of wild ducks in our State. The bobwhite, a bird that probably provides more sport to hunters throughout the United States than does any other single species, is a familiar part of the Louisiana landscape, and occurs all the way from the Arkansas border down to Weeks Island on the Gulf of Mexico.

Duck hunting in Louisiana is particularly pleasant. Compared, for example, with the severer difficulties of duck hunting in the North, the Louisiana hunter has an easier time. The natural setting and the mild weather contribute to make duck hunting in our latitude a thorough pleasure.

This year brings profound changes in the hunting season. For the first time in American history the open season will consist of week ends in-

(Continued on Page 44)

Commissioner Maestri With Legislature Makes Definite Move in Establishing and Organizing a Geological Survey of the State of Louisiana

On September 26, 1934, Commissioner of Conservation Robert S. Maestri and Director Henry V. Howe of the School of Geology of Louisiana State University entered into an agreement whereby a cooperative geological survey of the State was initiated. The establishment of this survey is the result of efforts for many years by the Department of Conservation and Louisiana State University to secure funds for such a survey.

It is, perhaps, of interest to note the circumstances under which the Department of Conservation entered into cooperation with the Louisiana State University to conduct a survey of the State. The Louisiana Geological Survey, which was organized in 1898 under the direction of Professor Gilbert D. Harris of Cornell University, conducted geological investigations in Louisiana until the survey was abandoned in 1909. During this period a number of exceedingly valuable reports were published which outlined the major geological features of the State with surprising accuracy. This survey was largely responsible for the early developments in the petroleum, natural gas, salt, and other mineral deposits of Louisiana. From the year 1909 until the year 1921 when the Department of Geology was established at Louisiana State University and the Department of Conservation established a thoroughly organized office of the Division of Minerals at Shreveport, very little information regarding the geology and mineral resources of Louisiana was published, although numerous companies explored and exploited the mineral resources of the State and some of their discoveries were recorded in various professional papers, but these papers were not generally available. Following the establishment of these two Departments a number of reports dealing with the mineral resources of Louisiana were published by the Department of Conservation, while Professor Henry V. Howe of the Department of Geology of Louisiana State University published a number of reports dealing with the geology of Louisiana. During this period, the Department of Conservation and Louisiana State University conducted a survey of the clay deposits of North Louisiana and published the results in three separate reports. Act 45 of 1930 brought into existence the Bureau of Scientific Research and Statistics, and established it as a Division of the Department of Conservation. Although no funds were provided for in this Act for the establishment of a geological survey, Commissioner Maestri, in June, 1931, appointed a Geologist to the Bureau of Scientific Research and Statistics, and detailed him at the School of Geology of Louisiana State University to work with the Director of the School of Geology in compiling geological reports by parishes and publishing the same as a series of bulletins. James P. Guillot, Secretary, Department of Conservation, and now also Acting Director of the Bureau of Scientific Research and Statistics, Dean Charles W. Pipkin of the Graduate School and Director Henry V. Howe of the School of Geology of Louisiana State University assisted to a large extent in accomplishing the approval of this tentative geological program. The Geologist, Cyril K. Moresi, and the Director of the School of Geology, Dr. Henry V. Howe, began at once with the preparation of a report of the Parish of Iberia. This Parish was selected as the first of the series because of its vast mineral resources of petroleum, sulphur and salt, and the important position it held in the salt dome literature of the world. In November, 1931, the first study entitled "Geology of Iberia Parish" was published by the Department of Conservation. During the following two years, the Department of Conservation, through this cooperative program with Louisiana State University, published three additional geological bulletins. Time is yet too short to show the full effect of the investigations in South Louisiana conducted by this survey during the years 1931, 1932, and 1933, but there is no doubt that it stimulated industry to further such research of the mineral resources of Louisiana. However, had it not been for the great increase of the petroleum produced in South Louisiana in 1932, 1933 and 1934, the total mineral production of Louisiana for these years would have continued downward at a rate as great as in preceding years. The School of Geology had been conducting investigations in South Louisiana for a number of years prior to 1931, and much scientific information was given to those exploring the mineral resources of this region. In June, 1933, the Geologist detailed at the School of Geology was transferred from there to the newly established District Office and now main office of the Division of Minerals in New Orleans, leaving the survey in an unstable condition.

During the Legislative Session of 1934, Act 131 was passed, which provided funds to carry out the provisions of Act 45 of 1930 which created the Bureau of Scientific Research and Statistics. This measure placed a fee of $50.00 on all permits to drill wells for minerals, and required that funds derived therefrom be used for scientific investigations and for making a geological survey in cooperation with the School of Geology, Louisiana State University, and also be used to make topographic quadrangles with contours in cooperation with the Louisiana State Board of Engineers and the U. S. Geological Survey. Immediately after this measure became effective, the Department of Conservation, through Acting Director, James P. Guillot, and Geologist, Cyril K. Moresi, of the Bureau of Scientific Research and Statistics, began negotiations with Director Howe of the School of Geology in formulating a program to carry out a geological survey.

(Continued on Page 48)

Conservation of Louisiana's Mineral Resources, 1906 to 1935*

By

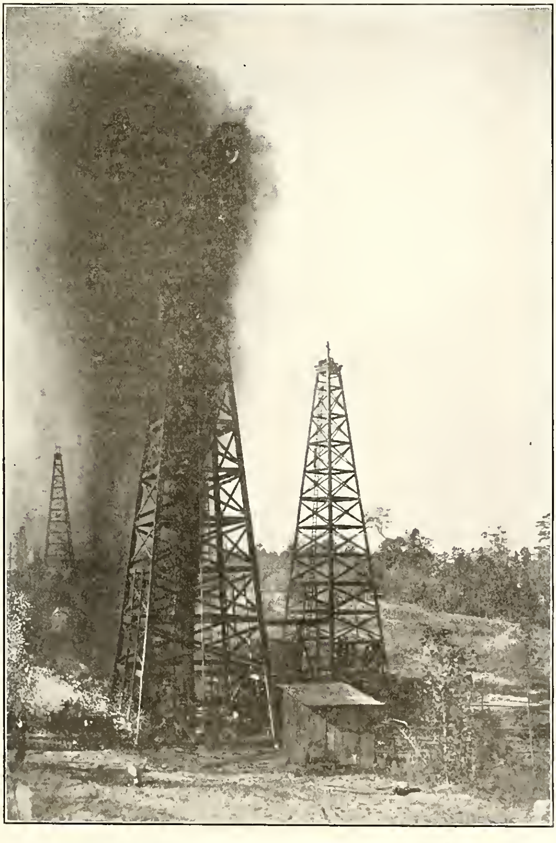
CYRIL K. MORESI, State Geologist,
Louisiana Department of Conservation

PART III—1918 TO 1928

THE Legislative Session of 1918 marks the beginning of the second era (see footnote*) in which the State advanced in its program of conserving the mineral resources of Louisiana. The rapid exploitation and development of the oil and gas fields of the State resulted in excessive wastes and pipe line operators began to create monopolies in marketing and transportation of crude oil and natural gas.

During this period, Huey P. Long, who had been elected Railroad Commissioner from the North Louisiana District in the fall of 1918, led the forces of the small operators into a series of legal controversies to prevent the pipe line operators from obtaining a monopoly in the marketing of crude oil and natural gas by virtue of their control of transportation facilities.

John M. Parker was inaugurated Governor in the spring of 1920. Under his able leadership, and stimulated by the spirited fight of Commissioner Long, the legislature enacted additional laws empowering the Department of Conservation with greater authority to conserve and protect the mineral resources of Louisiana, and to insure the small operator a fair price for his product. The revamping of the severance tax law of 1918 enabled the State and Parish Governments to derive a fair revenue from the severing of minerals from the



Gusher in the Homer oil field, Claiborne Parish, flowing 30,000 barrels of oil daily from a depth of 2095 feet (1919).

In order to eliminate repetition, the term "*operator*", as used in this study, includes all persons, firms, associations or corporations engaged in the business of exploring, exploiting, or severing raw mineral products from the soil or water.

The author wishes especially to thank N. E. Simoneaux, Attorney and Associate Editor, Louisiana Conservation Review for his able assistance in the selection and interpretation of the legal questions regarding the Acts included in this study. To James P. Guillot, Secretary, Department of Conservation, who supplied valuable information regarding the history of legislation concerning minerals from the date of Governor Parker's inauguration to the present time, the writer wishes to express his gratitude.

---

*These studies being so extended it was necessary to publish same in installments rather than in a single issue of the Louisiana Conservation Review. The first installment entitled, "Conservation of Louisiana's Mineral Resources, 1906 to 1918," Part I, is included in Vol. III, No. 3, July 1933 issue of the Review. The second installment, Part II, is included in Vol. III, No. 4, October 1933 issue. The present issue contains Part III and the date in the title has been extended to the year 1935. Part IV, the final installment, 1928-1935, will appear in the January 1935 issue. This study, in its entirety, will be included in the General Minerals Bulletin which is being prepared at this time.

soil. Governor Parker began to reorganize the Division of Minerals of the Department of Conservation immediately after taking office.

To make clearer the purpose of revamping the severance tax law, and laws regulating the production, marketing, and transportation of crude oil and natural gas by the Legislature of 1920, it is first necessary to discuss briefly the laws passed by the Legislature of 1918, and the rapid developments of the oil and gas industries previous to 1920.

Because of the excessive waste in the production and use of natural gas obtained from the gas fields of the State, an Act[51] was passed in 1918, which empowered the Department of Conservation with authority to prevent waste in the use of natural gas when such waste might threaten the common source. The Department was also charged with regulating the methods by which natural gas could be obtained from any well. Producers and consumers of natural gas were required to make full and complete reports to the Department of Conservation. The District Judges of the several parishes, wherein natural gas was produced, were required to investigate any waste in the production or use of natural gas.

The term "waste" was specifically defined in this Act as: (a) wantonly or wilfully permitting the escape of natural gas in commercial quantities into the open air; (b) the intentional drowning with water of a gas stratum capable of producing gas in commercial quantities; (c) underground waste; (d) permitting of any natural gas well to burn wastefully.

This Act authorized the Department to regulate the flow of a well to twenty-five (25) per cent of its potential capacity during each twenty-four hour period; to regulate the use of pumps, compressors and other artificial or injurious means of increasing the natural flow. Therefore, it became imperative that the Department make frequent inspections and investigations of the natural gas fields of the State so as to enforce the provisions of this Act. However, funds were not available at this time to secure technically trained agents to enforce these regulations properly.

The Department was empowered to sue out an injunction without giving bond in any of the District Courts of the State to prevent and prohibit the waste of natural gas. Penalties for the violation of the provisions of this Act were a fine of not less than $100.00 nor more than $500.00 or imprisonment for not less than thirty days (30) nor more than sixty (60) days or both at the discretion of the court.

In addition to the regulations imposed to prevent surface waste and waste in the use of natural gas, this Legislature imposed[52] regulations for the drilling, extraction, purchase, and sale of natural gas. The amount of natural gas obtained from any source was regulated. Each firm purchasing gas was defined as a common purchaser, and each firm producing natural gas was defined as a common producer.

This regulation prevented the discrimination of one producer in favor of another and one source of supply against another. If a purchaser could not purchase all the natural gas offered by the various producers he was then required to purchase the product from each producer ratably. The Department was required to measure, by meter, all natural gas produced.

The legislature required the Department of Conservation to see that the provisions of this Act were fully and properly complied with and the Act stated that "any person, firm or corporation, or partnership, violating any of the provisions of this Act shall be guilty of a misdemeanor . . ."[53]

The first adequate severance tax law was enacted in 1918. The Act[54] levied a license tax on all natural resources severed from the soil and water and it was anticipated that the revenue derived from the tax would reach $300,000.00 annually. The tax was collected by the tax collectors of the various parishes. Each operator was required to file with the Department of Conservation within thirty (30) days after the expiration of each quarter-annual, a statement showing the nature of the natural product, the gross amount, and the actual cash value of the product severed and any additional information deemed necessary. The Act specified that the following percentages would be levied: Three-fourths (¾) of one (1) cent per barrel for crude oil; ten (10) cents per ton on sulphur; two (2) cents per ton on salt; and one-fifth (1/5) of one (1) mill per thousand (1000) cubic feet for severing natural gas. The Department was authorized to investigate such operators whenever it became necessary. One-sixth (1/6) of the tax collected from the severence of oil and gas was accredited to the Department to make a survey of the mineral resources of the State, to conserve and protect the oil and gas resources, and to supervise the collection of the tax. One-fourth (¼) of the tax was accredited to the Current School Fund. All previous license tax laws imposed on the severing of natural resources were repealed[55] by this Act.

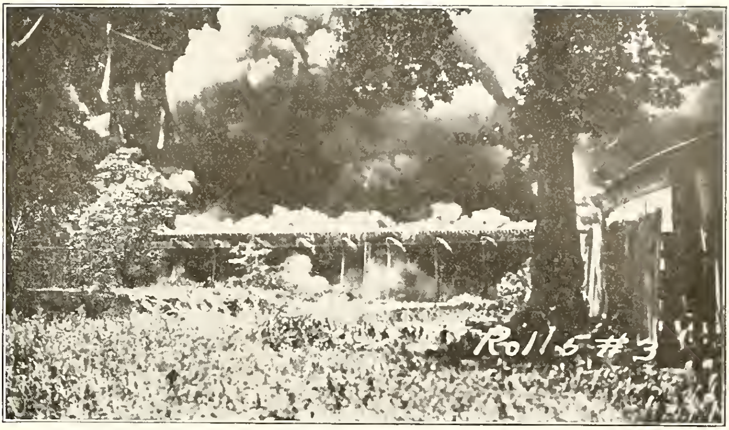
---

[51] *Acts* of La., No. 268, 1918. In 1925 the Louisiana Supreme Court decided a case holding that the "land owner does not own fugitive gas beneath land and has no monied claim against owner of adjoining land for negligently permitting well near line to blow out and allowing gas to escape, his only remedy being by action to enjoin waste." *Louisiana Gas and Fuel Co. v. White Bros.*, 157 La. 728.

[52] *Acts* of La., No. 270, 1918.

[53] *Idem.*

[54] *Acts* of La., No. 20, 1918, Ex. Sess., pp. 29 ff.



View of the Missouri Pacific Railroad Trestle burning as a result of ignited waste oil from the Urania oil field (1926).

On August 16, 1918, the Department of Conservation assumed charge of the supervision of the collection of the severance license tax. Previous to this time, the State Auditor supervised the collection of this severance license tax and the issuing of the previous licenses for the second quarter of 1918, had been completed by the State Auditor. During the following six months the collections on petroleum amounted to $54,528.92, sulphur $44,470.00, gas $2,960.48, and salt $2,057.08. During 1919, the collections increased, with petroleum amounting to $95,903.29, sulphur $33,839.50, gas $6,390.20 and salt $3,362.49. The collections of the license tax increased tremendously and particularly the delinquent taxes under the supervision of the Department.[56]

Gusher in the Pine Island (Caddo) oil field, Caddo Parish. This well came in producing 15,000 barrels of oil daily in 1919.

In addition to the revenues derived from the severance tax on minerals, the State through another of its Departments, the State Land Office, received large sums in cash bonuses and royalties from State lands leased for the purpose of severing minerals from the soil.[57] From April 1, 1918 to March 1, 1920, the sum of $6,697.00 was received by the State Land Office. This revenue decreased some twenty-thousand dollars from the previous biennial period. The Register reported that the leasing of lands had been affected because most of the State lands were unsurveyed and inadequate descriptions often resulted in litigation after the leases were let. Most parties who were interested in obtaining State lands would not file an application for a lease on tracts not accurately described by legal subdivisions. The Register recommended that a State engineer be assigned to the State Land Office to make surveys whenever necessary.[58]

---

[55] *Acts* of La., No. 10, 1916; No. 145 of 1916; No. 82, 1918; No. 124, 1918.

[56] Fourth Biennial Report, *La. Dept. Consv.*, 1918-1919, p. 154.

[57] *Acts* of La., No. 30, 1915, Ex. Sess. p. 62.

[58] Biennial Report, *Register, State Land Office*, May 1920, p. 5.

The necessity of the Legislature of 1920 taking such drastic steps to conserve the mineral resources at this time may be shown by giving a brief summary of the developments of the oil and gas fields in the State during the years 1918 and 1919. Louisiana rated sixth, among the oil producing States, in quantity of petroleum produced in the United States for the year 1918. During this year the total production of petroleum amounted to 17,349,540 barrels, almost twice the quantity produced for the previous year. This production was obtained from five parishes two of which, Acadia and Calcasieu, are located in the southwest portion of the State and three of which, Caddo, De Soto, and Red River, lie in the northwest portion of the State. The Caddo field, the most productive, produced a total of 12,589,822 barrels of oil for the year 1918.[59]

In the production of natural gas, Louisiana was rated fifth among the gas producing States. The total production of natural gas, produced from fields located in the parishes of Bossier, Caddo, De Soto, Ouachita, Red River, Morehouse, and Terrebonne, amounted to 45,869,346,810 cubic feet.[60]

The most important gas producing section of Louisiana was, and still is, known as the Monroe district, embracing portions of the parishes of Ouachita, Morehouse and Union. During 1919, the exploitation of this field had resulted in much waste and conditions were such at the beginning of 1920 that a conference, composed of the Commissioner of Conservation, the Superintendent of the Division of Minerals, a representative of the United States Bureau of Mines, and the principal producers operating in this field, was held for the purpose of placing into effect more stringent regulations in the production of natural gas in the Monroe field.

During this time the great sulphur mine of Louisiana, Sulphur salt dome, Calcasieu Parish, continued to be an important factor in the economic life of the State. The production of sulphur for the year 1918 amounted to 918,700 tons. Two salt mines, Avery Island and Weeks Island produced a total of 133,000 tons of salt during the year 1918. A third mine, the Jefferson Island salt mine, was under construction at this time.

Because of the extensive exploration, exploitation, and development of the mineral resources of the State, the Division of Minerals of the Department of Conservation arranged for the extension of its work, both with respect to inspection and statistical service. However, insufficiency of funds at the disposal of the Division prevented this work from being carried out thoroughly. Operators in the oil and gas fields of the State were subject to the rules and regulations adopted by the Department of Conservation, December 1,

Solid sulphur from the Sulphur dome, Calcasieu Parish. During this time (1914) approximately 50,000 tons of sulphur were obtained from this dome annually.

---

[59] Fourth Biennial Report, *La. Dept. Consv.*, 1918-1919, p. 34.

[60] *Idem.*

1918; and the special regulations governing production of natural gas in the Monroe district adopted in 1919. All gas producing wells throughout the State were individually metered. Many important wild wells and craters were placed under control during 1918 by the Division of Minerals in the parishes of Ouachita, Morehouse, and Union.[61]

In addition to supervision and regulation of the firms exploiting and developing the mineral resources of the State, the Department collected the severance tax and a part of that tax, twenty-five thousand dollars, was used by the Department to supervise the collection of the tax and carry out the work of the Division of Minerals. This proportion of the tax was still insufficient to carry out the work of the Division of Minerals properly.[62]

The enactment of legislation in 1918 to conserve and protect the natural gas fields of the State, to prevent monopolies in the production, marketing, and transportation of natural gas and the enactment of a severance license tax so that the State and Parish Governments would derive additional revenue from the severing of their natural resources from the soil has been discussed.

No additional measures were enacted during the Session of 1918 to conserve further and protect the petroleum resources or to protect the small operator in the production, marketing, and transportation of crude oil.

During the latter part of 1918, and during the year 1919, Railroad Commissioner Huey P. Long, was prosecuting the pipe line operators and thereby making public the unfair methods employed by these corporations who were endeavoring to obtain a monopoly of the crude oil production of northwest Louisiana. John M. Parker was elected Governor in the early part of 1920. One of Governor Parker's campaign promises was the enactment of legislation leading to the proper control and protection of the petroleum resources and the protection of the small operators engaged in the production of crude oil and natural gas. Commissioner Long supported Mr. Parker's program wholeheartedly and under Governor Parker's leadership, the Session of 1920 enacted a number of measures to correct the irregularities in the crude oil industry. Also during this Session, the severance tax law was revamped so that the State would derive more revenue from the severing of the natural resources from the soil, and a number of provisions of the previous Act which resulted in irregularities were revised.

One of these measures[63] empowered the Commissioner of Conservation with greater authority to conserve and prevent waste in the production of crude petroleum and natural gas by requiring the operators to carry out certain regulations set up by the Commissioner. The Commissioner was given authority to adopt, promulgate, amend and re-adopt rules and regulations for the drilling, developing, sinking, deepening, and abandonment of natural gas and oil wells; to promulgate rules and regulations for the opening and operation of mines; for regulating the production and use of natural gas in connection with the manufacture of carbon black and requiring that the gasoline contained in the natural gas used by carbon plants be extracted before such gas be utilized for the purpose of manufacturing carbon black; and to require all operators to furnish the Department with reports of the production of such wells or mines.

The measure authorized the Commissioner to take charge of and cap or plug, at the expense of the operator, any natural gas well or oil well wasting oil or gas, in the event the operator failed to begin to close such well after five days of written notice. The term "waste" as used in this Act, in addition to its ordinary meaning, included underground waste, surface waste, or any unreasonable waste or leakage in the production of crude, petroleum, natural gas, or other minerals. The Commissioner was authorized to resort to courts for legal, equitable or criminal process to compel obedience and compliance with its rules and regulations. No injunction could be issued by any court to restrain the Department or any of its agents, from carrying out the provisions of this Act until after the court had been satisfied with the evidence submitted. Any operator could file in court a petition to test the legality of any order, rule or regulation of the Department of Conservation.

The penalty for violation of the provisions of the Act was limited, the fine being not less than $50.00 nor more than $1,500.00 and the term of imprisonment not more than 15 days or both fine and imprisonment. The Attorney General was required to represent the Department but he could direct a District Attorney to appear in his place. The funds necessary for the enforcement of this Act were to be appropriated from funds derived from the license imposed on businesses severing natural resources.

In order to further the conservation of the petroleum resources of the States and to secure each producer an opportunity to sell a fair share of the oil produced by him in a common pool, particularly during a condition of overproduction, another measure was passed by this Legislature.[64]

---

[61] *Ibid.*, pp. 28 ff.
[62] *Ibid.*, p. 12.
[63] *Acts* of La., No. 250, 1920.
[64] *Acts* of La., No. 73, 1920.

This measure empowered the Commissioner of Conservation with authority to appoint a supervisor for any such field in which conditions necessitated the promulgation of rules and regulations governing the purchasing of oil. The supervisor was to be selected by the Commissioner and his salary was not to exceed the sum of five hundred dollars per month. The Commissioner was authorized to remove any such supervisor whenever he deemed it advisable. This Supervisor could employ, subject to the approval of the Commissioner, such assistants as were necessary in the discharge of his duties. The term, "potential production," was defined as the amount of petroleum which could be and was actually produced from the wells in the oil field when operated to their full capacity for a reasonable test period, not to exceed five consecutive days. The term, "over-production", meant that the potential production was in excess of the quantity of oil which could be taken care of by storage or transportation in any oil field. The term, "persons" was to include all individuals, partnerships, associations of persons and corporations; "producers" included the lessee or other operators of oil wells, or owners of oil as produced from the well, and also the owner of the royalty, therefrom; and "buying agencies" embraced all persons engaged in the business of purchasing oil from the producer, provided that the purchasing of oil by a producer merely of the royalty on his production did not make such producer a buying agency.

The severance license tax enacted by the Extra Session of 1918 was repealed and an entirely new severance tax law[65] providing additional revenue was enacted. This measure imposed a two per cent (2%) license tax on the gross value of the total production of all natural resources severed from the soil or water. This tax was to be collected quarterly by the tax collectors of the various parishes and paid into a special fund known as the "Severance License Tax Fund." The license to operate in each quarter was based on the market value of the quantity severed during the last preceding quarter-annual period. Each operator was required to file, with the Supervisor of Public Accounts, within thirty days (30) after the expiration of each quarter-annual, a statement showing the nature and location of the resources severed, the gross quantity, and actual cash value received for that product. The Supervisor of Public Accounts was empowered to require from those severing natural products, any additional information he deemed necessary. The measure became effective July 1, 1920, and it repealed[66] all previous license tax laws imposed on those severing natural resources from the soil.

When the Supervisor of Public Accounts sought to collect the severance tax on gravel under the provisions of this Act, an operator contested the legality of the tax. In April, 1923, the Louisiana Supreme Court held that the Act applied to gravel, whether considered a mineral or not since it applied to the severance of all natural resources.[67]

From July 1, 1920 to December 31, 1922, the following revenue was collected from those severing mineral products: petroleum, $3,369,128.64; natural gas, $97,197.39; sulphur, $336,433.30; salt, $12,634.80; gravel, $40,505.93; sand, $10,560.19; shells, $6,257.07; stone, $1,901.91; and coal, $9.52. The total sum received by the State from this license tax during this two and one-half years amounted to $3,874,628.75. The total value of these products amounted to $193,733,015.25.[68]

Following the enactment by the Legislature of the measures regulating the production, marketing, and transportation of crude oil and natural gas, Governor Parker began a thorough reorganization of the Department of Conservation, and particularly of the Division of Minerals for the purpose of properly enforcing these regulations. Governor Parker secured an able petroleum engineer, Ben K. Stroud, and appointed him Director of the Division of Minerals in the beginning of 1921. A thoroughly organized office of the Division was established at Shreveport with a field office at Monroe. This program should have been carried out prior to this time, but it was not until Mr. Parker became Governor that the legislature appropriated adequate funds so that the Division of Minerals could carry out its work properly. The sum of $75,000.00 annually was appropriated out of the severance tax on minerals severed from the soil for the administration of the Division of Minerals.[69]

Through the lack of funds and technical assistance previous to this time, much damage had been done in the oil and gas producing territory of the State because the Department was unable to supervise properly the widely scattered operations. This delay resulted in the expenditure of large sums to correct the innumerable blow-outs and wild wells in the gas producing territory.[70] The following account is given so as to emphasize the importance of the natural gas and oil fields of Louisiana in relation to the other fields of the United States.

---

[65] *Acts* of La., No. 31, 1920, p. 31. The Louisiana Supreme Court decided that Section 4 of this Act "provides that no tax in addition to the license tax thereby levied shall be imposed upon the right to produce oil and gas, etc., does not exempt from taxation royalty interest or mineral rights owned by non-producers." *Shaw v. Watson, Tax Assessor,* 151 La. 873.

[66] *Acts* of La., No. 296, 1914; No. 20, 1918, Ex. Sess.

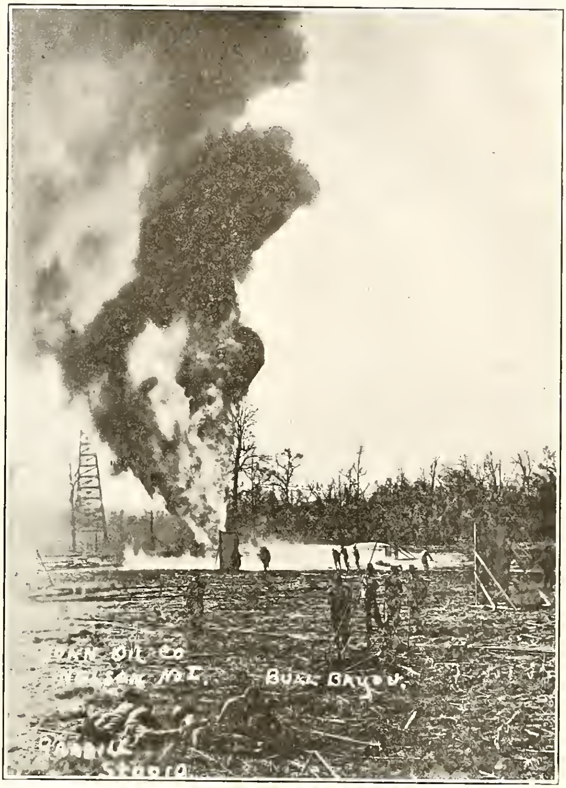
[67] "Act 31 of 1920, imposing license tax on business of severing natural resources from soil or water, is valid as applied to gravel under Const. 1913, Art. 229, as gravel, if not a mineral, is a natural resource." *State v. Louisiana Ry. & Nav. Co.,* 153 La. 817.

[68] *Report of Supervisor of Public Accounts,* 1924, p. 93.

[69] Fifth Biennial Report, *La. Dept. Consv.,* 1920-1921, p. 8.

By 1921 the Monroe gas field was considered by the United States Bureau of Mines as the greatest known gas field in the world. It had an area of about 250 square miles and a potential capacity of approximately 800,000,000 cubic feet per day. The Cities of Monroe and Bastrop were supplied with gas from the Monroe field while the City of Shreveport obtained natural gas from the fields of Caddo and Bossier parishes.

Because of the vast supply of natural gas in the fields of northeast and northwest Louisiana, Governor Parker instructed the Department to conduct a survey for the construction of a pipe line from the Monroe gas field to the City of New Orleans. A report of the survey was submitted to the Governor April 10, 1922.[71]



Fire in the Bull Bayou oil field which was finally controlled by the Division of Minerals in 1921.

At this time approximately 100,000,000 cubic feet of gas were being consumed daily by the carbon black industry. The Commissioner reported that the carbon black industry was detrimental to the gas fields of the State. Supervisor Stroud recommended that laws be enacted to eliminate the enormous waste in the gas fields of the State and he stated further that the "legislature should state in no uncertain terms, whether carbon black plants should or should not be allowed to operate in the State."[72] The total quantity of petroleum produced in Louisiana for the year 1920 amounted to over thirty-five million barrels. This quantity nearly doubled the quantity produced the previous year. During this period the value of crude petroleum ranged from one to three and one-half dollars per barrel.[73] The increased production in the petroleum and natural gas fields resulted in a tremendous increase in the leasing of State lands. During the period from April 1, 1920 to March 31, 1922, the State Land Office received $84,744.77 in cash bonuses and royalties from mineral leases.[74] This increased revenue exceeded the amount received during the previous biennial period by nearly $79,000.00.

An important decision regarding the ownership by the State of unnavigable streams was handed down during this period. The United States General Land Office issued the "Land Service Bulletin", which contained the following excerpt: "Where a bayou which was once navigable, has ceased to become so, the State, having been theretofore the owner of the bed of the bayou, subject to the right of the public to navigate it and to use the banks, has the right to lease it to persons desiring to drill for oil."[75]

It is interesting to note that the report of the Director, Division of Minerals, covering the years 1920 and 1921 presents the first reliable picture of the activities of the Division of Minerals and the extent to which the mineral resources were being developed. This report contains important recommendations to the Commissioner and to the legislature to conserve further the State's mineral resources. Some of these recommendations were carried out immediately while others were not acted upon until years later after much damage had been done. Commissioner Alexander stated that "there is no division of our work which has made greater demands upon us or where the results achieved have stood out more clearly than has the work of the Division of Minerals."[76]

---

[70] *Ibid.*, p. 9.

[71] *Ibid.*, p. 10.

[72] *Ibid.*, p. 39.

[73] *Ibid.*, p. 20.

[74] Biennial Report, *Register, State Land Office*, May 1922, p. 7.

[75] *Wemple v. Eastham, et al.*, 90 So. 637.

Commissioner Alexander realizing the necessity of making a geological survey of Louisiana, planned to establish such a survey as a division of the Department. However, such a survey was not established until some twelve years later. A detailed account of the establishment of this survey will be given in a more appropriate part of this study. The Commissioner also recommended that an accurate topographic survey of the entire State be made in cooperation with the United States Geological Survey as he realized that such a survey would be invaluable in any future development of Louisiana's natural resources. He also recommended that a survey of the clay deposits of Louisiana be made.[77]

Governor Parker not only reorganized the Division of Minerals of the Department, but he also established a Department of Geology at Louisiana State University in 1922. Dr. Henry V. Howe, was appointed to the faculty of Louisiana State University as Professor of Geology. The University embarked on a policy of developing a professional school in geology and petroleum engineering so that Louisiana boys might have an opportunity to fit themselves for positions in the petroleum industry and assist in the scientific work of the Division of Minerals.[78]

As a result of Supervisor Stroud's recommendation,[79] that the Department not only regulate the supply of natural gas but that it also be empowered to regulate and control the use of natural gas, the Legislature of 1922 enacted a measure[80] which authorized the Department to curtail the quantity of natural gas used from a given field by the carbon industry whenever an actual shortage of natural gas existed in the domestic and industrial markets. This measure did not fulfill Supervisor Stroud's recommendations. However, it did give the Department some authority to curtail the excessive use of natural gas by the carbon industries. The Act authorized, directed and empowered the Commissioner of Conservation to fix and determine on the first day of October, 1922, and semi-annually thereafter, what percentage of the consumption of natural gas produced by each gas well may be used in the manufacture of carbon black. This percentage was based on the potential capacity of each well and fixed by the Commissioner within the limits of from fifteen to twenty per cent of that well's potential capacity. The Commissioner was also authorized to reduce the consumption of natural gas below the minimum fixed in this Act after promulgation for sixty days of an order to that effect. The gasoline contained in the natural gas was to be extracted before the gas could be used for making carbon. The Commissioner was authorized and directed to make rules and regulations to carry out the provisions of this Act. The measure carried penalties for the violation of any of its provisions. This measure was the only legislation enacted during the Session of 1922, relative to the regulation of those engaged in the exploitation and production of oil and gas in the State. However, the severance license tax was revised as will be seen in succeeding pages.

In March, 1923, M. S. Alexander died and the Department was without a Commissioner for the following three months. The death of Mr. Alexander ended the services of a most enthusiastic conservationist. He was one of the three commissioners first appointed when the Conservation Commission was created in 1912. He served as president of that Commission until 1916, when the Legislature created the Department of Conservation. The Act[81] creating this Department, required that it be controlled and directed by a Commissioner of Conservation who was to be appointed by the Governor, with the advice and consent of the Senate, for a term of four years. Mr. Alexander was appointed Commissioner and served in that capacity until his death in 1923. In the summer of 1923, Dudley Berwick was appointed Commissioner of Conservation.

Commissioner Berwick reported in 1924 that "the deficit which exists prevents the adequate correction of violations of the laws for the protection of the State's natural resources, notably in the oil and gas fields . . ."[82] He stated further that "the Department has maintained a strict regulation of the production of gas and oil but the present law is inadequate to control the use of gas in the manufacture of carbon black," and he recommended that the Department be given greater power to gauge properly wells producing gas and limiting the use of natural gas.[83] H. W. Bell, succeeded Ben K. Stroud as Director, Division of Minerals in 1923. Director Bell reported that the price of petroleum increased

---

[76] Fifth Biennial Report, *La., Dept. Consv.*, 1920-1921, p. 9.

[77] *Ibid.*, p. 10.

[78] "The Contribution of Louisiana State University to the Development of Louisiana Geology," by H. V. Howe and C. K. Moresi, La. Consv. Review, *La. Dept. Consv.* April 1933, p. 30.

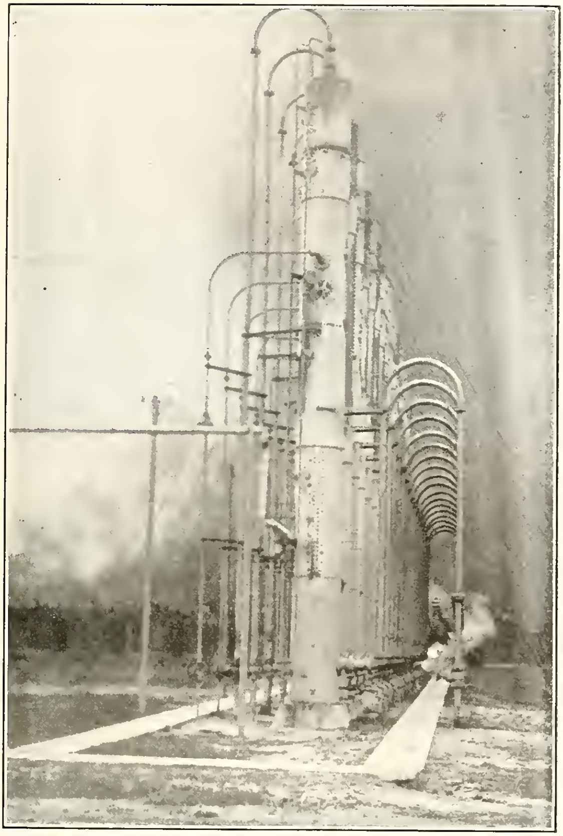
[79] Fifth Biennial Report, *La. Dept. Consv.*, 1920-1921, p. 39.

[80] *Acts* of La., No. 91, 1922.

[81] *Acts* of La., No. 66, 1916, p. 172.

[82] Sixth Biennial Report, *La. Dept. Consv.*, 1922-23, p. 7.

[83] *Ibid.*, p. 8.



Battery of absorbers in the Monroe field (1925). Here the natural gas is forced through the containers, which are filled with mineral seal oil, and the high grade gasoline extracted before the gas is burned for carbon black purposes.

slightly in 1922 and the total quantity of crude oil produced in the State amounted to approximately 29,000,000 barrels for that year; a slight increase over the previous year. The price decreased in 1923, due largely to the overproduction of oil in California. As a result of this decrease in price, the production of crude oil in the State decreased to 23,000,000 barrels for the year 1923.

During 1922 and 1923, the production of natural gas increased tremendously. The production of natural gas amounted to approximately 77,000,000,000 cubic feet for the year 1922, and in 1923, the production increased to 111,000,000,000 cubic feet. At the end of December, 1923, the daily average production was in excess of 450,000,000 cubic feet, making Louisiana the largest gas producing State in the Union.[84]

At the end of 1923, there were in North Louisiana, 21 casinghead gasoline plants having a daily capacity of 21,726,000 cubic feet of natural gas; 24 natural gasoline plants having a total daily capacity of 588,000,000 cubic feet of natural gas; and 40 carbon plants.

As a result of the increase in the production of petroleum and natural gas on State leased lands, the revenue derived from this source continued to increase. The State Land Office received $96,894.04 in cash bonuses and royalties from mineral leases for the period from April 1, 1922 to March 31, 1924.[85] This sum exceeded the amount received during the previous two year period by some $12,000.00.

On January 1, 1923, the revised severance tax law[86] which had been enacted during the Legislative Session of 1922 became effective and repealed the severance license tax of 1920.[87] This Act fixed a tax rate of three per cent (3%) on crude oil and natural gas and two per cent (2%) on all other natural products severed from the soil or water. In January, 1923, this measure became effective and a number of oil operators brought suit against the Supervisor of Public Accounts, whose duty it was to supervise the collection of this tax, contesting the validity of the Act and the right of the legislature to impose a tax rate of three per cent (3%). Both the District Court and the State Supreme Court[88] upheld the validity of the tax, and the ruling was sustained by the United States Supreme Court.[89]

Later two firms, who were engaged in the petroleum business, refused to pay the full three per cent (3%) due on the oil produced during the first quarter of 1923, contending that they were entitled to a credit on the severance tax covering the oil produced during the last quarter of 1922, which tax was based on two per cent (2%) of the value of the oil. The Supervisor of Public Accounts refused to allow such credit and contended that the severance tax law of 1922 required that the previous law remain in effect until January, 1923. The question was pending in the courts, and because of these legal proceedings only a portion of the severance tax on petroleum for the year 1923 reached the treasury that year.[90] During 1923 a total of $604,524.44 was derived from the severance tax on minerals. The total value of these products amounted to $27,169,059.86.

---

[84] *Ibid.*, pp. 13 ff.

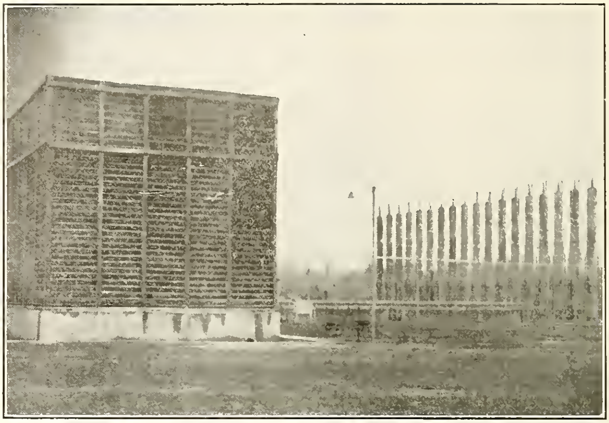
[85] Biennial Report, *Register, State Land Office,* May 1924, p. 4.

[86] *Acts* of La., No. 140, 1922. With reference to severence tax due on gravel produced from a leased pit it has been held that, "as between lessor and lessee of gravel pit, severence tax . . . [is] due exclusively by lessee who owned materials upon severence." *Brewer v. Forest Gravel Co., Inc.,* 172 La. 828.

[87] *Acts* of La., No. 31, 1920.

[88] Four important questions relating to the severence tax were decided in this case: "Severence tax is not a tax on property, but excise tax on privilege; severence tax not subject to limitation as to amount applying to annual property taxes; equality and uniformity provisions not applicable to severence tax; tax on production of oil and gas does not violate Federal Constitution, though not imposed on oil or gas brought from other states." *Gulf Refining Co. of Louisiana v. McFarland, Supervisor of Public Accounts,* 154 La. 251; *Wright et al. v. Imperial Oil & Gas Products Co.,* 177 La. 482.

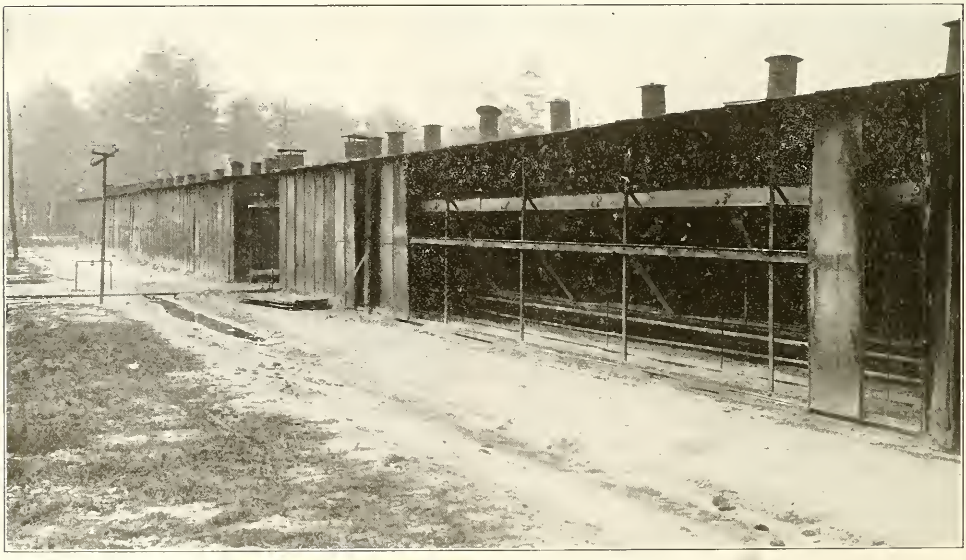
[89] 264 U. S. 573.



To the right is seen a battery of absorbers where gasoline is extracted from the natural gas and on the left is the condenser house or "still" where the gas is cooled by a water system and the gasoline separated from it (1924).

Because of the extensive developments in the oil and gas industry the activities of the Division of Minerals continued to increase during 1922 and 1923, resulting in an increase in the number of inspectors so as to patrol all fields in the State. The State was divided into six divisions and the Division of Minerals stationed an inspector in each district. The headquarters of these inspectors were as follows: an office with a staff of two inspectors was established at Monroe, and one inspector each was stationed in the towns of Oil City, Mansfield, and Crowley. The headquarters of the Division of Minerals remained in Shreveport. During 1922 and 1923, the Division expended the sums of $61,582.85 and $39,870.75, respectively. These amounts did not include office salaries and expenses.[91]

Since the legislation enacted in 1922[92] was inadequate to regulate the use of natural gas for



S. H. Huber Company's carbon black burning house with part of wall removed to show the interior (1924).

---

[90] *Report of Supervisor of Public Accounts*, 1924, p. 6.

[91] Sixth Biennial Report, *La. Dept. Consv.*, 1922-1923, p. 107.

[92] *Acts* of La., No. 91, 1922.

manufacturing carbon black, the Department drafted a measure to regulate properly this industry, but some of the provisions were not accepted by the Legislature. The Act of 1922 in reality did not authorize the Department to curtail the natural gas used by the carbon industry until there was an actual shortage of natural gas for domestic and industrial purposes in any given field. As a large percentage of the gas production was controlled by the carbon black interests, other industries and pipe line operators were prevented from utilizing the gas in the Monroe gas field, thus making it difficult to secure gas for purposes other than for making carbon black.[93] Director Bell recommended that the Legislature empower the Department of Conservation to regulate the use of natural gas for the making of carbon black. During the Legislative Session of 1924 a number of important measures were enacted granting the Commissioner of Conservation additional authority to direct, control and preserve the mineral resources of the State.

Although laws prescribed for the severing and conservation of mineral resources of the State vested the Commissioner of Conservation with authority to use his discretion in the matter of issuing permits and making contracts and agreements for severing, this authority could not be exercised without the approval of the Attorney General and the Governor.[94]

A measure was enacted to conserve further the natural gas resources of Louisiana. The Act[95] defined the conditions under which natural gas could be burned into carbon black and established rules and regulations for the spacing and drilling of gas wells. The percentage of the open flow capacity and maximum percentage of gas taken from gas wells were limited. The Commissioner of Conservation was authorized to make rules and regulations for the conservation of the natural gas resources of the State. The Act made it a misdemeanor to violate any of the provisions thereof and provided penalties.[96]

To conserve further the petroleum resources of Louisiana the rules and regulations prescribed by the Division of Minerals were enacted[97] and the measure limited the quantity of gas that could be blown into the air to produce oil. Section 1 was amended[98] in 1926 to give the Department authority to make arrests or secure injunctions against violators of the conservation laws relating to minerals without the sanction of the Attorney General of the State whenever immediate action was required. The provision empowered the Commissioner: to devise and enforce rules for spacing of oil wells in any field in the State; to prevent waste; to keep accurate and complete log of each well and supply two copies to the Department not later than ten days after the completion of a well; to prevent any well from producing oil and gas from different strata; to prevent a well from being drilled through any oil, gas, or water stratum without sealing off each stratum; to force operators of pipe lines and producers to notify immediately the Department by telephone or telegraph of all fires which occur at oil wells, oil tanks, or in pipe lines; to require operators to keep an accurate record of the drilling and furnish the Department with same and any of its agents upon request; to give all conservation agents authority to inspect all wells or records at any and all times; to hold contractors, drillers, lease holders, land owners, or operators responsible for infraction of said regulations; to prohibit oil or salt water to waste into any stream or to flow over the land; to prescribe rules, regulations and requirements for the conservation of crude oil and natural gas; to prevent the use of casing swab or other like devices for lifting oil to the surface by means of wire cables and suction tools for general production; to require all rigs or wells to be marked in a conspicuous place, showing name, number, serial permit number, and owner of the well; to have operators give written notice to drill, deepen, plug, sidetrack casing that has not been set, pull, temporarily abandon, abandon, perforate or otherwise disrupt a string of casing; to have operators furnish the Department with weekly and monthly reports; to have each operator check the depth of each well drilling with a steel tape and record the same on the log; to have each operator cement wells properly, specifying the number of sacks to be used. Section 2 authorized and directed the Commissioner to promulgate all necessary rules and regulations for the conservation of oil in addition to the provisions of this Act. Section 3 provided that any operator violating any provision of the Act, or any rule, regulation, or order of the Commissioner shall be guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than fifty dollars nor more than one thousand dollars, and each and every day shall constitute a separate offense.

---

[93] Sixth Biennial Report, *La. Dept. Consv.*, 1922-1923, pp. 18 ff.

[94] *Acts.*, of La., No. 134, 1924.

[95] *Acts* of La., No. 252, 1924. This Act and Act 91 of 1922, "do not empower the Commissioner of Conservation to refuse a permit to manufacture carbon black from natural gas to a person able and willing to comply with the statutory requirements." *Herkness v. Irion*, 278 U. S. 92.

[96] "Act No. 252 of 1924 for conserving natural gas resources **held** to constitute the law regulating amount of gas which may be taken, subject to restriction that well drilled before passage may avail of provisions of Act No. 91 of 1922." *State v. Thrift Oil & Gas Co.*, 162 La. 165; "gas company **held** not subject to conviction for taking more than natural production of natural gas, in absence of showing of over-production under Act No. 252 of 1924, though well was completed before passage thereof." *State v. Consumers Gas Co., Inc.*, 162 La. 200; *State v. Carson Carbon Co., Inc.*, 162 La. 781.

[97] *Acts* of La., No. 253, 1924.

[98] *Acts* of La., No. 123, 1926.

Due to the numerous fields producing oil in various localities in the State it became necessary to enact a measure to protect the natural waterways, canals, and aquatic life in streams against pollution by salt water or "bleed water", oil or other poisonous substances. A bill was passed[99] in 1924 which declared it unlawful and a misdemeanor for any operator or employee to pollute a stream by allowing oil, salt water or other poisonous substances to enter such streams. The Department was given supervision of all drainage of salt water or "bleed water" or other poisonous substances into natural streams of Louisiana. As a penalty for every violation of this provision, the Act imposed a fine of not less than $100.00 nor more than $2000.00 or imprisonment of not less than 30 days nor more than three months.

From the time of the death of Commissioner Alexander in March, 1923, until the appointment of V. K. Irion as Commissioner of Conservation, August 14, 1925, the Department was directed by three different Commissioners. Commissioner Berwick, who filled the unexpired period of Commissioner Alexander, was not reappointed and went out of office on July 10, 1924. From the time of the appointment of W. J. Everett to the position of Commissioner of Conservation by Governor Henry L. Fuqua in November, 1924, Frank T. Payne, for many years Engineer and Director, Division of Oysters and Water Bottoms, was Acting Commissioner. In August, 1925, V. K. Irion was appointed to the position of Commissioner. Commissioner Irion established a Division to collect the severance tax on sand, gravel, and shells.[100]

The sum of $75,000 annually was appropriated by the Legislature of 1924 for the conservation of the oil, gas and other mineral resources. Commissioner Irion stated that, "the supervision of drilling operations is the most important activity of the Department and the men employed in this division must necessarily be possessed of much technical knowledge and long practical experience and the Department can only obtain their services by attempting to meet the competition offered by the industry."[101]

In June, 1925, the Commissioner of Conservation, and the President of Louisiana State University entered into an agreement whereby a cooperative survey of the clay deposits of the State was initiated. As a result of this survey three bulletins were published during the following four years.[102] Professor Whittemore who was conducting this survey resigned in 1928 to accept a position on the faculty of Virginia Polytechnic Institute and the survey was abandoned.[103]

The production of crude petroleum in Louisiana continued to decrease. During the year 1922, the production of petroleum in Louisiana reached its peak which was 35,000,000 barrels. In 1924, Louisiana produced 20,194,000 barrels of oil and 20,605,000 barrels in 1925. In the early part of 1924 the prices for petroleum ranged from seventy-five cents to one dollar and ten cents per barrel. The peak prices for the biennial period 1924-1925, which ranged from $1.10 to $2.20 per barrel, was reached in July, 1925.[104]

Of the twenty-three natural gas producing States, Louisiana ranked fourth in production and accounted for 14.08 per cent of the total quantity of natural gas produced in the United States for the year 1924. The production of natural gas in Louisiana increased in 1924 to some 159,000,000,000 cubic feet, an increase of 48,000,000,000 cubic feet from the previous year. In 1925, Louisiana produced over 156,000,000,000 cubic feet of gas. The decrease in the production of gas in 1925 from the previous year was due to the reduction by the Department of the quantity of the gas which could be used for making carbon black. The first order reducing the amount of gas used for making carbon black became effective on March 1, 1925. In 1925, Louisiana produced seventy-five per cent of the carbon produced in the United States. During that year Louisiana produced 130,174,707 pounds of carbon. The recovery of gasoline from natural gas had assumed large proportions in Louisiana. During 1924, some 47,847,216 gallons of gasoline were recovered from 154,414,534,000 cubic feet of gas.[105]

A number of oil and gas fields were discovered in Louisiana during 1924 and 1925. The Cotton Valley field of Webster Parish began producing oil in commercial quantities in the spring of 1924 and in the center of this field an important gas horizon was encountered. Much of the gas was wasted by operators endeavoring to obtain oil production and it became necessary for the Department to take legal action to prevent the waste. In May, 1924, the Waskom gas field, Caddo Parish, was discovered. The Urania field, LaSalle Parish, began producing oil in commercial quantities in 1925.[106] During this year the Union Sulphur Company abandoned their sulphur mine on the Sulphur salt dome, Calcasieu Parish, after producing nine and one-half million tons of sulphur.[107]

---

[99] *Acts* of La., No. 133, 1924.

[100] Seventh Biennial Report, *La. Dept. Consv.*, 1924-1925, p. 5.

[101] *Ibid.*, p. 8.

[102] Whittemore, J. W., "The Clays of Louisiana: Shreveport Area", *La. Dept. Consv.* Bull. No. 14, 1927, 84 pp.; "The Clays of Louisiana: Alexandria Area," *La. Dept. Consv.* Bull. No. 16, 1928, 189 pp.; "The Clays of Louisiana: Monroe-Ruston Area," *La. Dept. Consv.* Bull. No. 19, 1929, 277 pp.

[103] "The Contribution of Louisiana State University to the Development of Louisiana Geology," by H. V. Howe and C. K. Moresi, La. Consv. Review, *La. Dept. Consv.*, April 1933, p. 32.

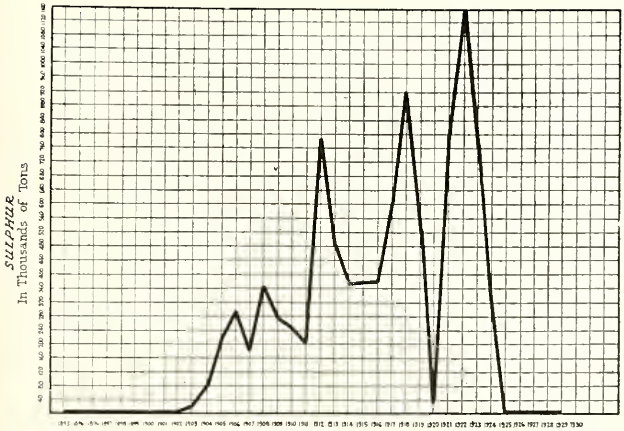
[104] Seventh Biennial Report, *La. Dept. Consv.*, 1924-1925, p. 19.

[105] *Ibid.*, pp. 20 ff.

Because of the great responsibility and broad authority bestowed on the Department by the legislature during the previous years, the work of the Division of Minerals became complicated and difficult. However, Director Bell reported that the gas operators in the Monroe field had agreed on the amount of gas to be used by the carbon companies. Much work was done by the Department to determine fraud in the metering of gas in the Monroe field. The Director stated that there were only five cases of non-compliance with the Departments regulations which had to be taken to court. The Cotton Valley field was the source of considerable trouble for the Division because of the combination of oil and gas being produced from the same wells. This controversy forced the Department to define the difference between an oil and gas well, this being the first time the Department had been called upon to decide such a case. The Department had the necessary authority through its regulations to handle this condition.[108]

Another complex conservation problem presented itself during this period. Waste fluids from oil wells of the Homer, Haynesville and Cotton Valley oil fields, Webster Parish, polluted to a considerable extent the low water of Borcheat Bayou and a large number of fish died. Due to the drouth and due to the fact that fish were dying in other sections of the State, the cause of the fish mortality became complex. The United States Bureau of Fisheries sent a representative to investigate this condition but in the meantime heavy rains had changed conditions and the source of pollution was never determined. However, the Department was vested with the power and authority[109] to prevent any pollution which was harmful to aquatic life. The question of the disposition of waste from pulp and paper mills had arisen and the Department began conducting investigations.[110]

Director Bell reported in 1926 that the four measures which were passed by the Legislature of 1924, empowered the Department to correct a number of irregularities in the production of oil and gas and gave the Department greater authority to conserve the State's natural resources. He stated that the Act 133 protects the fish life of natural waterways from polluting substances and directs the Commissioner of Conservation to enforce such regulation; Act 134 requires the approval of the Attorney General and the Governor before the Commissioner of Conservation can issue permits and make contracts for the severing of minerals from the soil and water; Act 252 revamps the gas and carbon black regulations giving the Department additional authority; Act 253 is a summary of the rules and regulations which had been adopted by the Division of Minerals. However, this Act carried no penalties and the Director recommended to the legislature that penalty provisions be included. The Director recommended to the Legislature that carbon black plants should be allowed to use only low pressure gas to manufacture carbon black and they should be denied the right to use high-pressure gas. The Division of Minerals received from the State Treasurer the sum of $37,500.00 for the six month period from July 1, 1924 to



Graph showing the quantity of sulphur produced yearly from the Sulphur dome, Calcasieu Parish, from the year 1903 until the mine was abandoned in 1925.

---

[106] *Ibid.*, p. 25.

[107] *Ibid.*, p. 30.

[108] *Acts* of La., No. 253, 1924.

[109] *Acts* of La., No. 133, 1924.

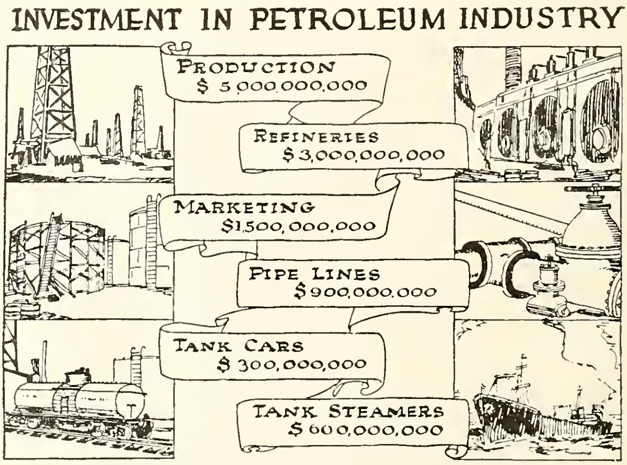
[110] Seventh Biennial Report, *La. Dept. Consv.*, 1924-1925, p. 36.

January 1, 1925, and the sum of $81,250.00 for the year 1925.

The two oil operators who were demanding a credit on the severance tax paid the State for the last quarter of 1922 won their case. The Louisiana Supreme Court upheld the contention of the oil operators that credit should be given them for the amount of the severance tax due the State for the last quarter of 1922, and directed the Supervisor of Public Accounts to credit them with the amount of the tax due the State for the last quarter of 1922.[111] The settlement was made in accordance with the court ruling and also all other operators who had paid a severance tax for this period were given the same consideration. The amount of the severance tax collected was reduced considerably for several months during 1925.[112]

The Constitution of 1921 provided that the severance tax may be predicated on either the quantity or value of the product at the time and place where it is severed. Under Act 140 of 1922 the amount of the tax was predicated on the value, the rates being based on three per cent (3%) of the market value of crude oil and natural gas and two per cent (2%) on the market value of all other natural products severed from the soil or water. Since it was rather difficult to determine accurately the market value of a given product at a given time and place and since this condition resulted in much controversy due to difference of opinions, the Supervisor of Public Accounts recommended to the Legislature of 1926 that the tax be changed so that a definite sum or percentage be levied on the quantity of the different products severed instead of the tax being based on the market value of the product. The severance tax laws of 1916 and 1918 levied the tax on a quantity basis. The value basis was included in the severance tax law of 1920 and the law of 1922—the latter being in effect at this time.[113]

The tax collected from those severing minerals from the soil and water for the year 1924 amounted to $1,830,919.62. The following year the sum of $1,024,229.61 was collected.[114]



From: The Oil and Gas Journal

Investments in the petroleum industry of the United States in 1926.

The State Land Office executed thirty-five new leases and a number of existing State leases were renewed during 1924 and 1925. The revenue derived from cash bonuses and royalties from mineral leases increased some $33,000.00 from the preceding biennial period. The sum of $130,982.43 was received by the State Land Office for the biennial period from April 1, 1924 to March 31, 1926.[115]

Commissioner Irion reported[116] in 1928 that the appropriation of the Division of Minerals had been increased to $100,000.00 annually by the Legislature of 1926. The Commissioner recommended to the Legislature of 1928 that funds be made available to continue the survey of the clay deposits of the State and also recommended that a statewide geological survey be instituted. Part of the appropriation of the Division of Minerals had been expended to carry out the clay survey of the State.

The number of wells drilled in Louisiana, during 1927 was less than that drilled in 1926 due to the overproduction of crude petroleum resulting from the flush production in the Seminole

---

[111] *Gulf Refining Co. of Louisiana v. McFarland, Supervisor of Public Accounts*, 157 La. 713.

[112] *Report of Supervisor of Public Accounts*, 1926, p. 6.

[113] *Ibid.*, p. 8.

[114] *Ibid.*, p. 98, p. 216.

[115] Biennial Report, *Register, State Land Office*, May 1926, p. 4.

[116] Eighth Biennial Report, *La. Dept. Consv.*, 1926-1927, p. 10.

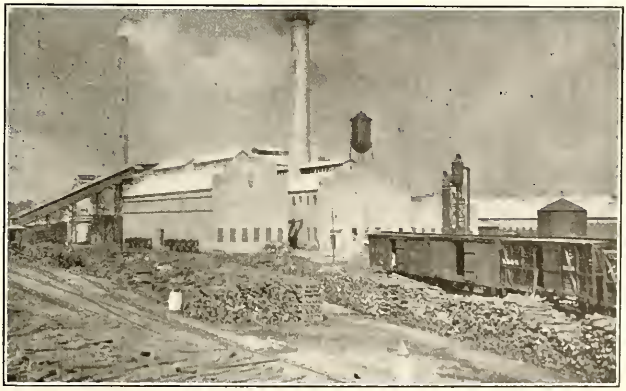
Exterior view of Termatomic Carbon Company's plant at Sterlington (1926).

field of Oklahoma. Because of this overproduction of crude petroleum, the Federal Oil Conservation Board, the American Petroleum Institute, the Mid-Continent Oil and Gas Association and practically all the principal producers and marketers attempted to remedy this situation but their efforts were futile. The oil industry of the nation represented an investment of some $11,300,000,000 in production, refining and marketing at this time.[117]

During the two year period, 1926-1927, a number of oil fields were discovered in Louisiana. In North Louisiana, the Pleasant Hill field, De Soto Parish, was discovered and production in a number of the older fields was extended. In South Louisiana, commercial production of petroleum was discovered on six salt domes during this period. Geophysical prospecting in South Louisiana increased tremendously in 1926 and 1927 and as a result of these surveys a number of salt domes were discovered.

At the end of 1927 Louisiana had 23 producing oil fields with a total production of 23,167,239 barrels for the year. North Louisiana with 12 fields accounted for 18,134,852 barrels, while South Louisiana with 11 fields accounted for 5,032,387 barrels.[118]

Louisiana ranked fifth in 1926 among the gas producing states. Louisiana had the lowest average value of natural gas at the well and at points of consumption because of the tremendous volume of cheap gas consumed by the carbon black industries. However, the value of the Louisiana produced gas increased slightly in 1927 due to the development which had taken place in domestic and industrial markets of the State. New pipe lines leading to Central and South Louisiana and industrial centers outside the State were being constructed. In 1927, Louisiana produced a total



Plant of the Brown Paper Mill at West Monroe which uses natural gas for fuel.

---

[117] *Ibid.*, p. 109.
[118] *Ibid.*, p. 117.

of 181,169,793,000 cubic feet of gas from 13 gas fields located in North Louisiana, and one field in South Louisiana.[119]

The three salt mines of Iberia Parish, Avery Island, Weeks Island, and Jefferson Island, produced a total of 581,367 tons of salt in 1927, while exploitation of the sand, gravel, shell, and stone deposits continued to increase. During this year, Louisiana produced 2,420,932 tons of gravel, 595,085 tons of sand, 711,367 tons of shells, and 118,385 tons of stone.[120]

The revenue derived from the tax on minerals severed from the soil and water amounted to $1,296,914.55 for the year 1926. The following year the sum of $1,129,566.72 was derived from this tax.[121] The Supervisor of Public Accounts in his report to the Legislature in 1928 again recommended that a tax be imposed on the quantity of the product severed rather than a tax based on a percentage of the value of the product.[122]

Increased activity in the exploration of the petroleum deposits of South Louisiana during 1926 and 1927 resulted in the execution of some forty-nine new leases by the State Land Office. The revenue received through this Department in cash bonuses and royalties from mineral leases for this biennial period was nearly five times greater than that received during the previous biennial period. From April 1, 1926 to March 31, 1928, the State Land Office received the total sum of $684,204.19 from mineral leases.[123]

Well in LaSalle Parish improperly abandoned. Under the supervision of the Division of Minerals a pine plug was forced into the casing head to stop the flow of salt water in 1927. Large quantities of salt water flowed from this well prior to 1927 which resulted in the killing of numerous trees.

In 1926, William F. Chisholm succeeded H. W. Bell as Director of the Division of Minerals. Director Chisholm stated in his report to the Commissioner in 1928 that the gas control system which was in effect in the Monroe district had been extended to cover the greater part of the gas producing area of northwest Louisiana. The first advance of the Division to control the excessive waste of gas in the Monroe district was made in 1921. The following three years attention was concentrated on the repair of faulty wells and the elimination of fraudulent methods in the metering and production of gas in the Shreveport District. In 1926 the system of recording information and controlling gas production in sympathy with the laws and regulations of the Department was fully complied with. While fields in Northwest Louisiana, which presented more complicated drilling and production problems than the Monroe district had not been attended to as properly as they should have been. In 1927, attention was focused on the gas fields of the Shreveport district. A competent clerk and an experienced gas inspector were transferred from the Monroe district to the Shreveport district. Meter charts were required from the operators and the Division of Minerals began gauging the gas wells.[124]

Increased activity in South Louisiana required the Division to detail a more experienced agent in the oil industry to the Gulf Coast area. Prior to this time the practice of cementing casing was entirely neglected in South Louisiana. However, the efforts of the newly appointed agent remedied this condition somewhat. Numerous and diverse pollution problems presented themselves during the years 1926-1927. Director Chisholm reported that the principal difficulty encountered by the Division in investigating and determining the sources of pollution was the lack of topographic maps throughout the State. Pollution problems cannot be handled intelligently without accurate information on drainage and topography. With the increased waste from refineries, the growth of the pulp industry and the possible introduction of chemical industries in the State, topographic maps were becoming a more important item in conservation work.[125]

The Director reported that a spirit of cooperation with operators had developed rapidly during 1927. Close cooperation had been established with the Conservation Branch of the United

---

[119] *Ibid.*, pp. 133 ff.

[120] *Report of Supervisor of Public Accounts*, 1928, p. 224.

[121] *Ibid.*, p. 107, p. 223.

[122] *Ibid.*, p. 7.

[123] Biennial Report, *Register, State Land Office*, May 1928, p. 4.

[124] Eighth Biennial Report, *La. Dept. Consv.*, 1926-1927, p. 173.

[125] *Ibid.*, p. 176.

States Geological Survey. The Division of Fisheries and the Division of Minerals of the Department were attempting to establish, in the Shreveport Office, an analytical laboratory in which the chemical features of pollution could be worked out.[126]

Measures to change some of the existing legislation for more efficient conservation were recommended by Director Chisholm. The most important problem which confronted the Department at this time was the conservation of gas which was produced with oil. The existing law provided that the operator "shall not waste more gas than three-cents per thousand cubic feet of the market value of the oil produced from a well."[127] From 30 to 40 million cubic feet of gas were being wasted daily in the Pine Island field, Caddo Parish, as a result of operators attempting producing oil. The Department was unable to remedy this condition as the operators were protected by recent legislation.[128] The loss of gasoline which could have been extracted from the gas and the loss of the ultimate recovery of oil caused by water encroachment and loss in lifting power was much greater than the value of the gas wasted.[129] However, no provision was enacted to authorize the Department to remedy this condition.

Discovery well in the Carterville gas field, Webster Parish (1927).

The Director recommended that a $5,000.00 bond be posted before the drilling of a well, because in many cases owners of a well might not own property of sufficient value to cover the cost of repair. The Department had to bear the expense of closing a number of wild or uncontrolled wells when the operator was unable to refund this money. The provision which covers this phase of conservation[130] states specifically "wild" or "uncontrolled" well and was attacked on the ground that the title was not sufficiently broad. The Director recommended that this section should be termed as follows: "Any faulty well doing or capable of doing damage to adjoining property, or injuring or capable of injuring the interest of the State by pollution or premature exhaustion of the mineral resources, could be taken over by the Department of Conservation and be properly repaired or abandoned by contract or by the Department itself at the expense of any operator who fails to make such repairs of his own volition."[131]

Finally, Director Chisholm stated that the "conservation laws now on the statute books are too many and too long. They can probably be interpreted intelligently by a lawyer thoroughly familiar with the oil and gas industry, but to the oil and gas operator with no legal training, or to the average lawyer with no gas and oil experience,

(Continued on Page 41)

---

[126] *Ibid.*, p. 178.

[127] *Acts* of La., No. 253, 1924, amended *Acts* of La., No. 123, 1926, Sec. 1.

[128] *Idem.*

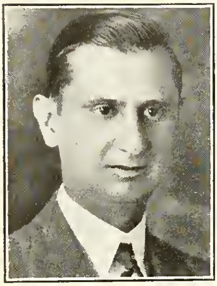
[129] Eighth Biennial Report, *La. Dept. Consv.*, 1926-1927, p. 179.

[130] *Acts* of La., No. 250, 1920.

[131] Eighth Biennial Report, *La. Dept. Consv.*, 1926-1927, p. 181.

The Commercial Fisheries of Louisiana

Address by N. E. SIMONEAUX, Associate Editor Louisiana Conservation Review, delivered over Station WWL at New Orleans, at the request of the New Orleans Young Men's Business Club, August 9th, 1934



N. E. SIMONEAUX

Commissioner Robert S. Maestri and the Louisiana Department of Conservation wish to express appreciation to the management of Station WWL for their courtesy in extending facilities to officials of the Department for a series of addresses on conservation topics, and we are indebted to the Young Men's Business Club for sponsoring this program.

To give a brief description of the value and importance of the commercial fisheries of Louisiana, I will quote from an article published in the Louisiana Conservation Review of January, 1932, by R. H. Fiedler, Chief, Division of Fishery Industries, United States Bureau of Fisheries:

> "The fisheries of Louisiana rank as one of the State's most important natural resources, and play an important role in its economic welfare. They provide sport and recreation for about 38,000 anglers, and profitable employment for over 8,000 commercial fishermen and persons engaged in transporting fishery products from the fishing grounds to market, in the wholesale trade, and in preserving fishery products. In other words, about one out of every forty persons in Louisiana has some interest in the fisheries of this State. This number would be increased considerably if persons were included who engaged in the retail sale of fishery products, or in the building of fishing boats, vessels, and gear, and in the manufacture and sale of anglers' supplies.
>
> "The annual production of the commercial fisheries in Louisiana, according to the latest figures available, amounts to about 73,700,000 pounds, valued wholesale at $3,400,000. Of this amount, 61,900,000 pounds valued at $2,800,000 are taken in the marine fisheries, and 11,800,000 pounds, valued at $600,000, are taken in the interior rivers and lakes."

The present able and experienced director of the fisheries division of the Department of Conservation is Mr. J. B. Dauenhauer, Jr., who was a member and auditor of the original Game and Fish Commission of Louisiana, created by an act of the Louisiana Legislature in 1906.

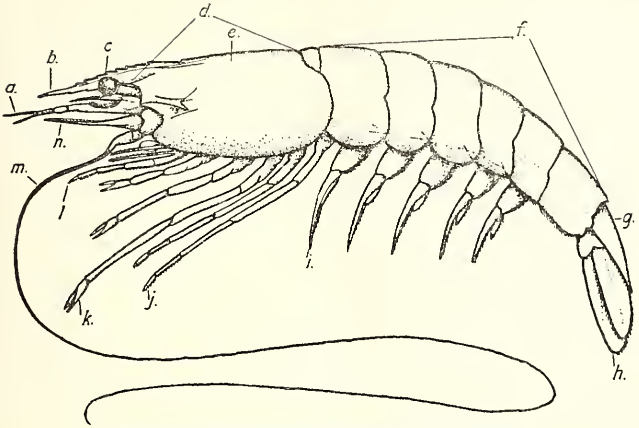
COMMERCIAL SALT WATER FISHERIES—SHRIMP

Shrimp constitute the principal marine fishery of Louisiana, and a continuous supply of this sea product is so vital to the fishing industry of the State that the Department of Conservation inaugurated a special investigation of shrimp life in Louisiana coastal waters in cooperation with the Federal Government in February, 1931, as authorized by Act 45 of the legislature of 1930. The results of this investigation have been published in the Louisiana Conservation Review at various times during the course of the investigation.

In the year 1913, commercial production of shrimp in the State of Louisiana amounted to 10,000,000 pounds, valued at half a million dollars. The catch increased annually until the peak of 50,000,000 pounds, valued wholesale at $2,000,000 was reached in 1929. During the years of depression, from 1929 to 1932, a decrease in production occurred, being approximately 32,000,000 pounds in 1932; in 1933, however, there was an increase of 3,000,000 pounds in the catch, the total being nearly 35,000,000 pounds, having a wholesale value of $1,220,000. The average production of commercial salt water shrimp in Louisiana amounts to about 43% of the entire production of the salt water fisheries of the State.

OYSTERS

Next in value and importance among the commercial fisheries of Louisiana is the famed Louisiana oyster, which is cultivated in bedding grounds along the Louisiana coast, and requires for its proper culture a mixture of fresh and salt water. The United States Bureau of Fisheries gives the Louisiana oyster production for the year 1929 as approximately 8,000,000 pounds, valued at $438,000. The records of the Louisiana Department of Conservation show that the oyster production for the year 1932 was 431,000 barrels, and in 1933, 616,000 barrels. The average prevailing wholesale price during the 1933-34 season in Louisiana was .50 per barrel for natural reef oysters and $1.50 per barrel for cultivated oysters. The total production for the past season is valued at about $750,000.00.



THE COMMON SHRIMP, PENAEUS SETIFERUS (LINNAEUS)
(From Weymouth, Lindner and Anderson, 1933)
The more conspicuous structures are labeled as follows: a, antennule; b, rostrum or "spine"; c, eye; d, cephalothorax or "head"; e, carapace or "head shell"; f, abdomen or "tail"; g, telson or "tail spine"; h, unropod or "tail fin"; i, first pleopod or "swimming leg"; j, fifth pereiopod or "walking leg"; k, chela or "pincer" of third pereiopod; l, third maxilliped; m, antenna or "whisker"; n, antennal scale or acicle.

THE BLUE CRAB

The next in value, after shrimp and oysters, among the commercial salt water fishery products of Louisiana is the blue crab. Records of the Department of Conservation give the production of hard shell crabs during the year 1933 as 768,000 dozen, valued at $115,000; soft shell crabs, 132,000 dozen, valued at $100,000; and packed crab meat, 1,800,000 pounds, valued at $362,000; all figures being wholesale values, totalling $577,000.00.

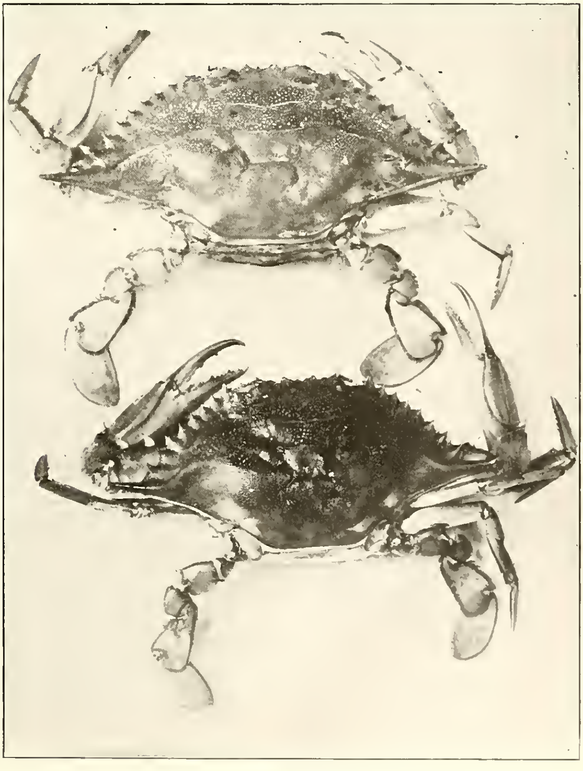
In an article (published in the Louisiana Conservation Review, November, 1931), by Mr. Joseph L. Fisher of Morgan City, who operates a fresh crab meat packing plant in that city, it is stated that "Two hundred girls and women are now employed in Morgan City and Berwick in an industry that is believed to be in its infancy."

> "Crab meat is the industry that promises to be the major one in this section in the near future. The first establishment was opened here a few years ago in a small way by a New Orleans distributor who has gradually enlarged his plant and increased his number of workers, until now he employs about fifty men and women. Today there are eight such concerns in Morgan City and Berwick, providing employment for six hundred people.

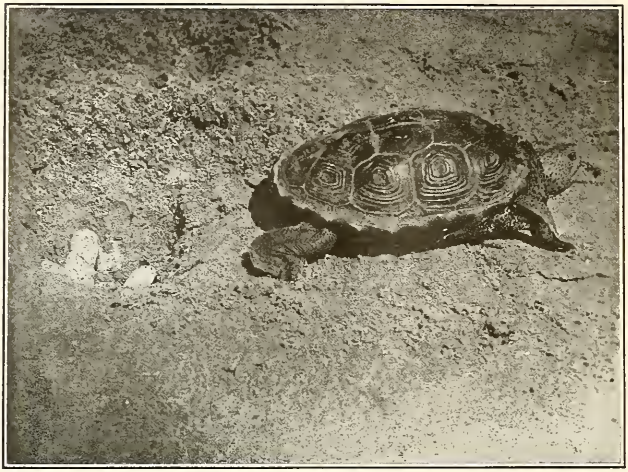
"Some doubt was expressed for a time whether there would be enough crabs to maintain the plants in continuous operation, but this doubt has now been eliminated by the string of boats on the Gulf coast fishing salt water crabs. Perhaps a hundred men are now employed fishing crabs in the 'Outside' waters, mixing the salt water crabs with the fresh water catch.

"The salt water crab is fished on lines bearing about 80 prongs of bait, averaging a catch of fifty to sixty on each line.

"Fishermen of crabs are paid about $1.00 per 100 pounds, and the net weight of meat secured from each hundred pounds of live crabs will average about 33 pounds.



The Blue Crab



A Diamond-back Terrapin depositing its eggs in the Sand

"A visit to the packing plants affords interesting sights. White-gloved girls wearing white aprons and white caps work eight hours daily picking the white and dark meats from these queer looking specimens of sea fish which appear limitless at times and, again, at other times are hard to find. Crabs are brought to the docks in any quantity from a sackful to three tons at a time. They must be alive or they do not find their way to the boiling pot. They are thrown into boilers and in about twenty minutes are on a table in the hands of girls who dissect them, securing every ounce of meat possible.

"The meat is put into individual strainers standing before each of the operators, and when these are filled they are carried into the weighing rooms where weights are recorded, and each operator is credited with her poundage. The meat is packed in this room into one pound cans and sealed, and immediately placed in cold storage. The meat is segregated, white from dark, the former bringing ten cents per pound more than the latter at retail. The dark meat is derived from the claws of the crab, and while selling at the lesser sum is frequently preferred by some people to the white meat.

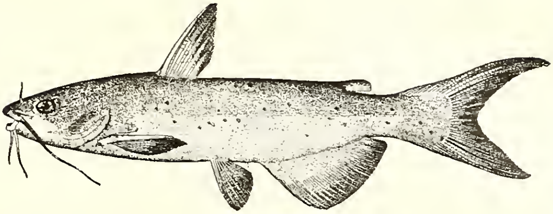
"These cans, after being placed in temporary storage, are packed into cases, properly iced, and shipped daily to all sections of the United States in large and small quantities. On the books of local packers may be found standing orders from many of the leading hotels of the United States. There is an established demand in the United States for 19,000,000 pounds of crab meat per annum and it is necessary to import 63 per cent or 12,000,000 pounds. Besides crab meat, 126,000,000 pounds of oyster meat and 102,000,000 pounds of shrimp meat are consumed annually in this country. Many fish dealers here are shipping fresh water fish and frogs over the entire country. Recently cold storage facilities have been established, and with this addition to the industry, surplus stocks can now be safely put away, preventing losses of these perishable products."

REDFISH, BLACK DRUM, AND SEA TROUT

Next in importance among the commercial sea fish of Louisiana, after shrimp, oysters and crabs, are red and black drum, squeteague or sea trout, and the sheepshead, ranging in volume of production in the order named.

Records of the Fisheries Division of the Department of Conservation for the year 1933, show the production of speckled sea trout as 300,000 pounds, having a wholesale value of $20,000. The production of red fish or salt water red

A White Sea Turtle taken in Barataria Bay drum for that year was 200,000 pounds, valued at $10,000 wholesale. The production of sheepshead for that year was 40,000 pounds valued at $2,000.


The Channel Cat

Terrapin and Sea Turtles

The Conservation Department's records further show that during the year 1933, 2,431 dozen of salt water terrapin were produced with a wholesale value of approximately $25,000 and 145,000 pounds of sea turtles with a wholesale value of approximately $6,000.00.

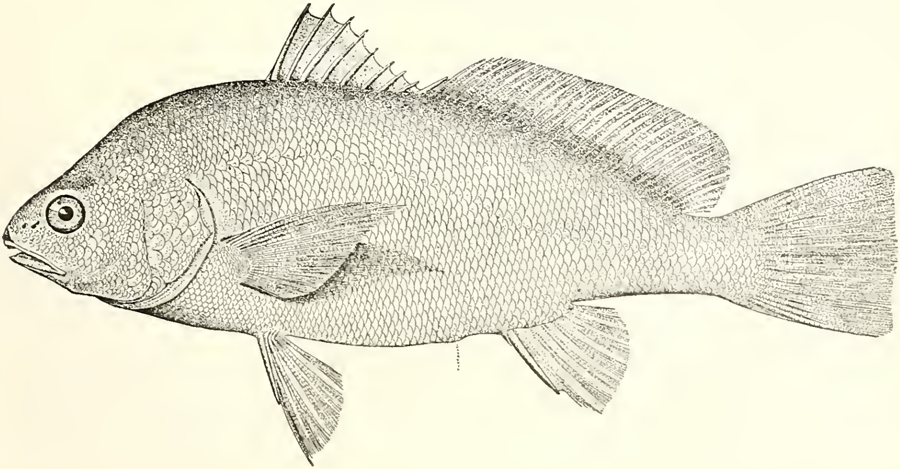
Other important commercial salt water fish produced in Louisiana include flounders and catfish. The Department's records for the year 1933 further show that the total production of all salt water fish, exclusive of oysters and shrimp, for the year 1933, amounted to approximately 5,000,000 pounds, with a wholesale value of nearly $700,000. In addition to the above, Louisiana averages a production of approximately 50% of the total production of salt water shrimp of the entire United States, and the possibilities of oyster production, from both cultivated oyster beds and the vast natural reefs, are practically unlimited. The total value of all commercial salt water fisheries products in 1933 was $2,370,000.00.

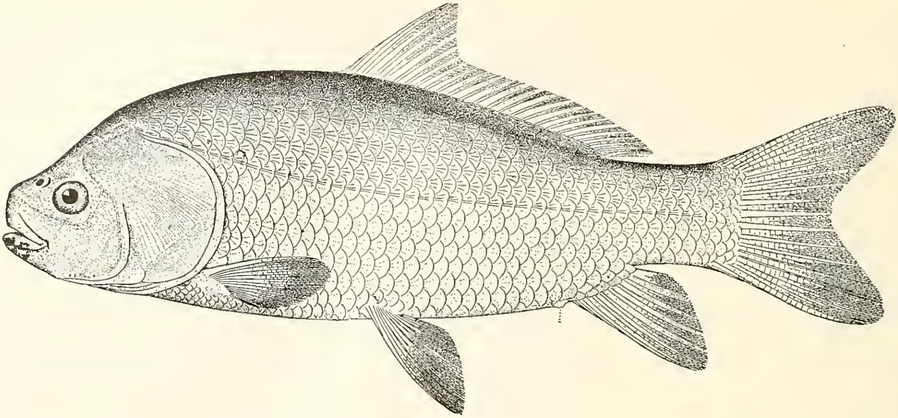
Commercial Fresh Water Fisheries

The principal commercial fresh water fish of Louisiana are the Buffalo fish, Catfish, Crayfish, Frog, Gaspergou, Shrimp, Spoonbill Catfish, and turtles. Of the true fishes, the annual catch of the Buffalo fish and the Catfish exceed in value and volume that of all others. The records of the Department of Conservation show that in the year 1933, 6,850,000 pounds of Buffalo fish were taken and their wholesale value was $275,000.00. The take of the Catfish for that year was three and a half million pounds, valued at $250,000.00; fresh water shrimp, 2,200,000 pounds, valued at $155,000.00; Frogs, 1,800,000 pounds, valued at $373,000.00; Crayfish about two million pounds, valued at $100,000.00; Gaspergou about two million pounds, valued at $60,000.00. All values given above being based on wholesale prices and totalling $1,130,000.00 for all fresh water fisheries products.

Medicinal Value of Seafoods

During recent years intensified studies have been made of the medicinal properties of various sea foods. Shell fish are particularly valuable both as a nutritious food and on account of their medicinal properties because they contain a wider variety of minerals and in a greater concentration than any other class of food, and contain also most of the nutritive factors and vitamins necessary in the human diet. Oysters, crabs, clams, shrimp, lobsters, and scallops contain


Gaspergou



Buffalo Fish

nearly twice as much minerals as true fishes. Raw oysters are now considered superior to liver for the prevention and treatment of anaemia.

Oysters, clams, and lobsters contain about two hundred times as much iodine as either eggs or beef steak. By using such products in the diet several times each week the amount of iodine required by the body will be supplied. The amount necessary to prevent goiter is very small. According to some statements, only about one part in three million parts of the body's weight. It is important, however, that this amount be maintained. The iodine content of the lobster is nearly twice that of clams or oysters, which have about an equal iodine content and rank next to the lobster; the proportion being, in the lobster about 11,500 parts per billion and in clams and oysters about 6,000 parts per billion. These figures refer to fresh fish. In canned sea foods, oysters lead. The liquor from canned oysters contains 9,600 parts per billion and the oyster itself, 4,000 parts per billion. Canned lobster contains only 5,000 parts per billion, or 50% less than fresh lobster.

WATER POLLUTION—PRESERVATION OF FISH

Two great problems confronting the fisheries industry are water pollution and the preservation of fish after they are caught.

Through its Bureau of Scientific Research and Statistics, the Department of Conservation has been engaged during the past year in a series of experiments designed to determine the extent to which fish life in coastal waters, and particularly oysters, may be affected by the effluence of oil brines and other noxious fluids and gases discharged from oil and gas wells into the shallow waters of the Louisiana Gulf Coast.

The problem of preservation of fish, after they are caught, is one for the merchants themselves to solve. Apparently the solution lies in the quick freezing of fish. Refrigeration serves to take fresh fish from the class of extreme perishables, and thus enables it to be accumulated from a highly fluctuating supply and moved into market as necessary to meet a highly fluctuating demand.

Corner of one of the four large brood ponds, Beechwood Fish Hatchery

The Thousandth Acre*

By

REGINALD D. FORBES

Photographs by A. F. HOUGH and H. F. MOREY

THE first snow of the season was falling as we turned southward from the Lakes-to-Sea Highway, near the tiny settlement of Wetmore, Pennsylvania, to visit the Thousandth Acre on Tionesta Creek. But before we reached it we had to traverse some of the nine hundred and ninety-nine.

At the top of the hill north of the creek, just as the car skidded down the slippery clay road, the buttressed stumps of giant white pines in a roadside pasture were limned against the whitened earth. Farther down the stumps became fewer, and to the practiced eye were recognizable as hemlock, or occasionally as hardwood. Then came telltale evidences of bygone fires, and from a bench half way down the hill the whole slope became visible as a desolate shambles of charred stumps and blackened skeletons of mighty tops left by the lumbermen when they removed the logs years ago. A few dwarfed and stunted fire cherries and aspens, now leafless, had made gallant effort to reclothe the ravaged hillsides, but had themselves felt the scourge of later fires. At the foot of the hill Tionesta Creek, muddied by unchecked rills scouring these bare slopes, flowed sullenly.

Hemlock and beech stand in goodly fellowship in Tionesta Forest—now nearly the sole remnant of that "Black Forest" for which Pennsylvania was famous in the days when she stood first among all the States in lumber production.

On foot we started up the opposite hill. The north slope was better clothed. In fact, wherever fires had been absent since logging a beautiful stand of slim maples, birches, and beeches, together with stouter trunks of fast-growing black cherries, had succeeded the virgin forest. Only the hemlocks were missing, except as overtopped seedlings and saplings. At last we won the plateau south of the creek and glimpsed, a mile or more ahead of us, sombre yet beckoning, the Thousandth Acre.

There are roughly 18,000,000 acres of forest land in the territory of the Allegheny Forest Experiment Station — the States of Delaware, Maryland, New Jersey, and Pennsylvania. Creditable as has been the effort of foresters and conservationists in these States, even this vast acreage does not begin to supply our own requirements for forest products, or to satisfy our ever-increasing need for water conservation, hunting, fishing, and recreation. It does not do these things partly because several million acres of the eighteen were reduced to idleness by ax, saw, and particularly fire, long before Americans awakened to the fact that our forests are worth conserving; partly because the capital of wood so far stored up in second-growth forests yields small interest in the form of sawtimber; and partly because we know pitifully little about the behavior of our trees, and how we may help the forest to fill our manifold needs. It is because of our ignorance of how to practice well-rounded forestry that foresters and conservationists alike are beginning to value the Thousandth Acre.

---

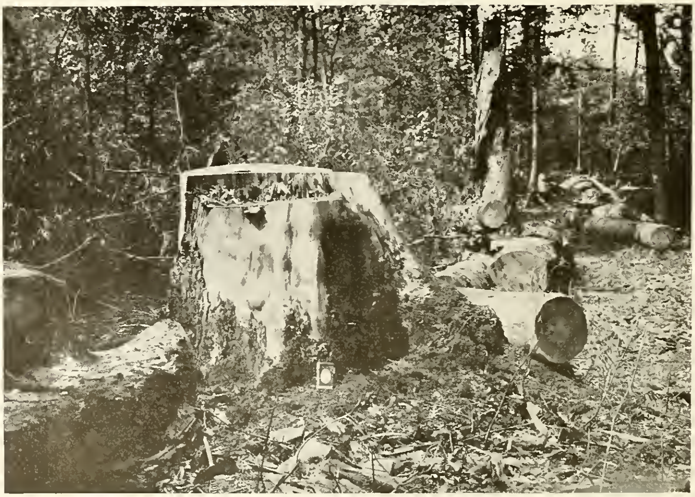
*Reprinted by Courtesy of American Forests, Washington, D. C.

Nine hundred and ninety-nine acres of forest land out of a thousand in the Allegheny territory have been cut over. The thousandth acre is virgin timber.

The virgin timber that lay ahead of us on the plateau and slopes above Tionesta Creek is the largest remnant of original forest between the Adirondacks with their spruce and fir and the Great Smokies with their oaks and poplar. It constitutes about one-third of the approximately 18,000 acres of forest remaining essentially undisturbed in four States. The tract lies astride the creek, a tributary of the Allegheny River, in the center, although not a part of, the Allegheny National Forest. A mile or two below the point where we had crossed the stream the original timber still stands in the narrow valley, and brown trout of fabulous size lurk in deep pools overshadowed for centuries past by hemlock and birch. The native trout, alas, have not withstood the warming of the water caused by its exposure to full sunlight in several miles of the upper reaches of the Tionesta valley, just described. In fact, the original peace and beauty of undisturbed natural conditions departed from the main valley with the building of a logging railroad up it in 1929, and a third of the virgin timber, including the only white pine, is now hopelessly beset by the lumberman and his works. But on the head of two tributaries—Cherry Run and the twin branches of Fork Run—man has scarcely set his mark. Entering the forest here, we were immediately conscious of a difference in the very atmosphere. The wind that had been nipping ears and fingers in the cut-over land moved less freely through the dense thickets of witch hobble and of tree seedlings, and the result was greater warmth in spite of the shade.

And shade it was. Here, sometimes over as much as five or ten continuous acres, we felt as though we stood in a gigantic hall, pillared by magnificent hemlock trunks, roofed by canopy above canopy of dark green hemlock needles, and carpeted by five centuries' fall of the same rich fabric, no longer green, but brown. In such spots not a few but nearly all the trees were over two feet in diameter, scores were above three feet, and now and then we measured one exceeding four feet. Log lengths ran to five quite commonly, sometimes to six, in trees with total heights up to 125 feet. I have yet to take a forester or a botanist into Tionesta who has seen Eastern hemlock to equal this. To lumbermen it will be enough to say that measured acres have been competently estimated to yield 50,000 board feet.

But the hemlock in Tionesta is not all, although it forms nearly a pure stand in such places as just described, and over the tract as a whole makes up probably two-thirds of the tree volume. Interspersed through these dark hemlock woods—now nearly the sole remnant of that "Black Forest" for which Pennsylvania was famous in the days when she stood first among all the States in lumber production—are mixed growths of



Evidence exists in this old hemlock stump, on the area cut over in 1929, that Tionesta Forest was part of the virgin green mantle that covered America prior to the coming of Columbus and the advent of the white man. For a count by forestry students of Pennsylvania State College found that it carried 560 annual rings.

hemlock and hardwoods, and sometimes patches of pure hardwoods. The hardwoods are principally beech, the best with clean boles of such dizzy height and exquisite proportions that I have since speculated whether the pillars of the first Greek temple were not conceived in the mind of some beauty-loving Hellene standing spellbound, high on Pelion or Ossa, in a grove of ancient beeches.

As for sugar maple, a timber cruiser whose keen eye and unerring judgment have served the Forest Service from California to Maine, and from Louisiana to Minnesota, told me that day that he had found "the biggest sugar maple tree in the United States" growing at the head of Cherry Run. My own contribution to the day's list of big trees included a red maple a trifle under 50 inches in diameter at breast height, and a black cherry only three or four inches smaller. All of these were well over 100 feet tall, and may have been 120 feet. Yellow and black birches rank next to the beech and maples in abundance, and among the rarer species are white ash, basswood, tulip poplar, and cucumber magnolia, the latter two typically southern species, although growing here in close association with northern species at an altitude of 2,000 feet.

Not every tree in Tionesta is a giant, of course. All ages are here present, from this year's seedlings up to contemporaries of William Penn, and even of Columbus. The forestry students of Pennsylvania State College found a hemlock stump with 560 annual rings on it, in the part of Tionesta cut over in 1929. Trees doubtless fully as old are still standing. Moreover, from time to time catastrophe has overtaken parts of the area, and thinned or even completely wiped out the ancient wood. The swath cut by a hurricane 110 years ago along Fork Run may be traced by the dense stand of relatively slender cherries and ashes, species that promptly take possession of blow-downs in these Allegheny Mountains. And laid nearly across the Tionesta tract from east to west is the scar of a fire following a similar blow-down about fifty-five years ago. Practically every tree above that age is wounded, and over many acres not a veteran remains.

As a spectacle the virgin forest of Tionesta Creek is something to live in the memory always. A day's walk in its depths will chasten the most blatant ego, and hearten and soothe the weariest spirit. As a hunting ground I dare not describe it, lest my reader take advantage of my indiscretion. Partridge, rabbit, deer, bear had left more tracks in that first snow than I have ever seen in an equal area in the East. And as a museum piece, a sample of the superb forest resource with which our Eastern continent was once endowed, it might yet sober a generation that in the West at least still draws lavishly on forest wealth it had no hand in creating. As all of these things Tionesta Forest has a value so far beyond that which may be derived from its conversion into lumber, tan bark, and chemical wood that it is unutterably tragic to think of its passing.

One of the rare white pines in the virgin Forest of Tionesta. Such giants make a trip or even a day's walk in the depths of this woodland inspiring, and a memory to live in the heart forever.

But there is a value in this tiny remnant of original growth, this one out of a thousand acres, which we believe transcends all the other values combined—its value of scientific study.

European foresters long ago discovered what Americans are only now beginning to realize: that a virgin wood is a treasure house of information as to Nature's ways, a priceless record of the slow but inexorable processes by which she moulds every forest and its teeming fauna to fit soil and climate. No system of silviculture, no manipulation of the forest to yield abundantly some product or service useful to mankind, can long run counter to natural tendencies or processes. For a few years—fifty perhaps, or a hundred—we may order the forest according to our own ideas, but eventually Nature will have her own way. In our management of the forests of the future we must understand, and in the essentials follow, Nature's way.

I know no better example of the persistence of natural forces in the face of human interference than recent developments in the old-field stands of white pine in central Massachusetts. Two hundred and fifty years ago the early settlers in the Swift River valley cleared away the virgin stands of hardwoods, with here and there a white pine, to make pastures or "mowing" for their sheep and cattle. Doggedly they grubbed out of narrow valleys every vestige of the original tree growth, and year after year joined stubborn battle with the pine and grey birch seedlings that, sprung from wind-borne seed, skirmished from the adjacent woodlots. Then came sterner warfare, and when Father Abraham called, men marched away to bloodier fields. The autumn winds of the '60's showered their pastures with pine seed, and by the time they returned—some never did—pine seedlings formed unbroken thickets between crumbling fences. There for fifty or sixty years pine reigned supreme.

Fifty-one inches in diameter, this tulip poplar is a monarch meanly slain, victim of the lowly porcupine. With their natural enemies, the cougar and bob-cat, exterminated or fast disappearing, porcupines fear only man.

Then a strange thing happened. Encouraged by the thinning of the pine crowns that takes place in most white pine stands at about this age, not pine, but *hardwood*, seedlings began to appear here and there beneath the pines. They were not only ashes and maples, light seeded species, but also oaks and hickories, the heavy seed of which were carried into the pine woods from adjacent forests in the jaws of squirrel, chipmunk, or mouse, or in the beaks of jays and other large birds. Neither birds nor animals, we may be sure, had anything in mind but their own winter food supply when they transported these nuts, and they allowed only a small percentage to germinate. But a few seedlings developing year after year for the past decade or two now form an understory of young hardwoods beneath the pines, and will some day surely dominate the forest. Then will the cycle be complete. Centuries before men, red or white, claimed this ground, hardwoods and pines had struggled to dominate it. And the hardwoods, somehow better able to take advantage of the comparatively heavy soils of the valleys, won the long battle with the pines. Then came the Puritans. They banished both contestants from the field for two hundred years. Seventy-five years ago the losers returned. Eventually, after three hundred years of exile, the oaks, hickories, ashes, and maples will once more be victors over the pines.

Forces that may not be denied, equally persistent with those which brought even heavy-seeded hardwoods back to the old fields in central Massachusetts, are operative in every forest in the world. They produced the virgin forest.

Given time enough, they will restore its counterpart. The best silviculture may modify the details, it cannot permanently change the essentials, of Nature's pattern.

Every virgin forest records—in a language not too difficult to read, if we make the first great step of recognizing that it is worth reading—the conditions which favored the reproduction of each species present on that soil and in that climate; the circumstances which enable one species to dominate or at least survive in its struggle with other species; and the influences which the forest or its several components exert upon the soil. Some forest soils of Saxony, we are told, have deteriorated alarmingly under a system of silviculture which ignored the original mixture of softwoods and hardwoods, and which attempted to grow softwoods exclusively, just because they were of faster growth or produced more salable wood. A study of the primeval forests, and of the long-term effect of their different species on the soil beneath, might have saved the Saxon foresters who were responsible, a blunder that has taken a century or more to become evident.

Already there has been committed in our own forests, without much protest from American foresters, a blunder which may prove fully as serious as this European one. Blandly ignoring the lesson which our virgin forests might have taught us concerning the delicate balance between all forms of life, we have ruthlessly hunted and even exterminated predatory animals and birds which alone through the centuries have protected the forest against a horde of potential destroyers. In some parts of Pennsylvania deer, undisturbed by cougar and bob-cat, and very inadequately hunted by man, have multiplied alarmingly; they have devoured every green thing within their reach, including the young trees that must some day replace the old if the forest is to survive. What further calamities we invited when we put bounties on the big cats, and on lesser predators such as foxes, hawks, and owls, we are only beginning to guess as we find porcupine damage increasing; seed crops of such large-seeded species as the oaks almost completely destroyed year after year; and tree seedlings stunted or killed by swarming rabbits and hares. We need authentic information on the system of checks and balances which Nature, if left alone, imposes on the creatures of the woods; nowhere can it be obtained as well as in the precious remnants of our primeval forest.

The Thousandth Acre on Tionesta Creek will repay the most detailed study. On 999 acres out of 1,000 in the Allegheny Station's territory Nature's record has been obscured, often hopelessly so, by the heavy hand of man and the Promethean fire. Research foresters have no desire to study virgin timber as they study second growth—by cutting it experimentally and observing the results. In common with botanists, zoologists, and students of soils, we wish to study this and other virgin timber tracts just as they are; to read the record of what has happened over the centuries, as the surest guide to what will happen again in the future. In Tionesta we want to learn, for example, whether the hemlock and the various hardwoods can be made to succeed themselves, or whether, as we already suspect, there must be a measure of alternation in their occurrence. We want to discover the conditions under which we may reproduce the magnificent black cherry and bring it to maturity unmarred by the inferiority of form that is often evident in second-growth stands. We want to know how to encourage the valuable sugar maple, which is here much less abundant than in the the northern hardwood forest generally. Having learned what are the forces at work, and how they operate, in the Thousandth Acre, we may then apply our knowledge to the management, for timber production, watershed protection, or recreation, of the second-growth forests that we hope will some day cover all of the other nine hundred and ninety-nine acres.

EDITOR'S NOTE: Recognizing the imperative need for prompt action to preserve virgin timber areas for study and inspiration, the United States Forest Service is systematically setting aside from other use so-called "Natural Areas" and "Primitive Areas" within the western National Forests. But in the East the land so far purchased for such forests bears almost no virgin growth. Precedent for buying limited areas of primeval forest for scientific study is contained in the following statement, in 1929, by the National Forest Reservation Commission justifying purchase of "Heart's Content"—101 acres of virgin white pine forest in Pennsylvania: "It is deemed eminently desirable that the Government should acquire this property, not as a museum site or as a recreational tract but as a laboratory for the promotion of silviculture within which to study the changes which take place in such forests."

PHONES MAin 1778-1779

M. Fauria & Sons, Inc.

AWNINGS—WINDOW SHADES—VENETIAN BLINDS
Tents—Tarpaulins—Yacht Sails, Etc.
Canvas Goods—By Yard or Roll
Boat Awnings—Our Specialty
1216-22 Royal St. New Orleans, La.

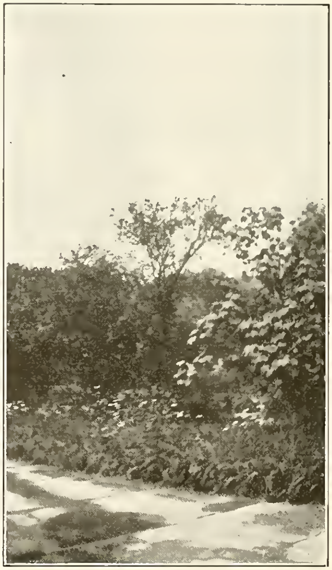
Westward from Canaan

A Brief History of The Pomegranate Tree

By **CATHERINE B. DILLON**
New Orleans

STARTING out recently to learn the history of the Louisiana pomegranate, the fact became evident that thus far, especially with regard to its inhabitance of this section, no study has been made. Of course, dictionaries and encyclopedias give weighty scientific descriptions of this plant, but unless one is a botanist or a horticulturist, much of such data is above one's head. Latin terms are very high-sounding and impressive, but the simple facts about the life of anything are far more interesting and comprehensive. In tracing the origin of this shrub that has become so commonplace in our everyday lives, a pageant of the ages passes in review, and the humble pomegranate takes on a fascinating air of importance.

The tree is of ancient Asiatic origin—older than civilization itself. Perhaps it bloomed in the Garden of Paradise, for it grew in the "Promised Land". According to the Thirteenth Chapter of Numbers, at the command of the Lord, Moses sent out a scouting party of picked tribesmen to look over the possibilities of the Promised Land of Canaan, west of the Jordan River. At the end of a forty-day reconnoiter, they returned with amazing tales of a country flowing with "milk and honey", and among the "fruits of the land", which they brought back as evidence, was the pomegranate. Moses favored immediate occupation—he wanted to "possess the land".



Scene in Jackson Square—Pomegranate tree in center.

A Floral Dictionary, an appendix to one of those lovely red and gold books for equally sweet young girls of the eighteenfifties, quotes the pomegranate as the symbol of foolishness, yet, King Solomon, author of Wisdom, sang of it in glowing terms. The tree seems to have been considered beautiful and exceedingly important in Biblical times. Throughout the Canticles, one finds mention of it. A few of the verses on this subject suffice to prove the point:

"Thy plants are a paradise of pomegranates with the fruits of the orchard." (Chapter IV-13)

"I went down into the garden of nuts to see the fruits of the vallies, and to look if the vineyard flourished and the pomegranate budded." (Chapter VI-10)

"I will take hold of thee and bring thee into my mother's house; there thou shalt teach me and I will give thee a cup of spiced wine and new wine of my pomegranates." (Chapter VIII-2)

Despite his numerous wives, which in our day present a condition hard to reconcile with sagaciousness, Solomon ranks as the world's wisest man. His Canticles are merely extravagant love songs, nevertheless, it is not for one poorly versed in scriptural interpretation to pass judgment upon his wisdom, nor to apologize for a Mid-Victorian symbolic definition of a pomegranate! Floral sentiments were born to grace lace valentines and have no place in the history of a healthy plant! However, King Solomon was not only inclined to extol this tree in song, but, as evidenced by the pillars of his temple, he employed it as an architectural motif. The Egyptians and Assyrians also used it in design.

From the days of ancient Rome, the tree flourished on the Italian peninsula. In the third century B. C., during the First Punic War, it was brought into Europe by the Carthaginians, who taught the Romans many of its uses. The Punic Wars covered a period of one hundred and eighteen years, from 264 to 146 B. C. The first struggle lasted twenty-three years. In the meantime, the pomegranates had grown acclimated to Roman soil. The Second War, in which the great Hannibal distinguished himself by his victories, only to go down in defeat before the Romans, began in the year 218 B. C., and continued for sixteen years, while the third conflict was of three brief years' duration—

149-146 B. C. It looks like the Carthaginians made a mistake introducing pomegranate juice into Italy—the pomegranate stayed; the Carthaginians had to get out!

In his Natural History, written in the first century, A. D., Pliny, the Elder, who came to such an untimely death during a Vesuvius eruption, tells us that even at that early date, several kinds of "the Punic Apple, called the pomegranate" had been developed. Rutilius Palladius, a Roman agriculturist of the late fourth century, likewise mentions this fruit in his writings.

Probably through the Moorish influence, the Spanish also used the flower in architectural design. Early spindles or turnings for staircase rails were modelled after the "balaustra", as they called the wild pomegranate flower—hence our word "baluster", which has been corrupted into "banister". From Spain, the tree followed the course of so many Asiatic plants now recognized as tropical. It was taken to the colonies along the Spanish Main, so long ago that it is now practically native. In the sixteenth century, pomegranate cuttings were conveyed to Florida from South America by the early Spanish explorers.

In North America, Virginia was cultivating this fruit in the first quarter of the seventeenth century. British and American Colonial privateers, raiding Spanish and other vessels on the high seas, often acquired many interesting items. Invariably, rare plants were being transported from one tropical settlement to another, when a galleon's cargo was confiscated by buccaneers. Thus the pomegranate reached the British colonies, coming to Virginia's shores as early as 1621, and to the Carolinas, where many daring corsairs put into harbor. Georgia manifested a keen interest in tropical plants. This colony sent a botanist to study and collect specimens in South American countries.

Revue Horticole print (19th Century) Grenadier Legrellii—(mottled variety)

When Louisiana first knew this tree is still one of the tantalizing unknown quantities of our charming history. Some authorities claim that the French found it in use here among the Indians. If such were the case Indian runners or couriers probably carried it from Florida or the British Colonies. The Early Census Table of Louisiana does not include the pomegranate, although it does mention the peach which was not indigenous, but acquired by the natives from white settlers. Wild plums, crabapples and persimmons were among the fruits used by the Choctaw tribe. The persimmon, or plaquemine, as the French called it, was used by the Indians in making a beer-like beverage. No reference is found to the pomegranate in Choctaw history among food, medicinal and dye-making products; if it was here, its use was not general.

The French, themselves, could have brought the tree over, as it had flourished long in France. Guillaume de Lorris speaks of it in the Romance of The Rose, written in the thirteenth century. However, one is inclined to think that had this fruit been cultivated in the Louisiana Colony under the French regime, the Jesuits would have developed it on their plantation which was the finest and most complete at the time. Figs, oranges, indigo, sugar and wax myrtle were grown on the Jesuits' tract, but there is no mention of a Punic Apple.

Just before the Spanish acquisition of Louisiana, Florida was abounding in fruit orchards. In 1763, the pomegranate was most conspicuously evident in the vicinity of St. Augustine. It is probable that the plant was brought to our soil from there. Many sketches of early French Quarter courtyards in the city, as rebuilt by the Spanish, include this flowering shrub as one of their attractive features. In 1794, de Lozieres describes "le punica" among the colony's trees.

Conceded generally a thing of beauty, the pomegranate also serves many practical purposes. From Biblical times, in Persia as well as in the Holy Land, this fruit has been used in wine making. Tropical America employed the juice as a cool, soothing drink, effective for reducing temperatures in fever cases. From the seedy pulp, Mexico produced a spiritous fluid. Florida, South Carolina and Georgia concocted delightful domestic beverages from the fruit. Grenadine syrup, the basis of many famous mixed drinks, is derived from equal parts of sugar and pomegranate juice. Dyestuffs, in red and yellow, also called grenadines, are obtained from its coloring matter. Medicinal teas—balaustines, from the Latin "balaustium"—are made from the dried flowers, fruit skin, bark and roots.

The name pomegranate literally means grainy or many seeded apple. At one time, horticulturists classified this shrub as a member of the myrtle family, but it has long since been established as a distinct order. Of the Genus Punicaceae, as the scientists put it, there are two species. One developed for fruit; the other merely ornamental. Of these, there are numerous varieties. Although it may be grown from seed, root shoots are more effective. Layers and cuttings have also been planted with success. The tree blooms in spring and produces ripe fruit around September. The flowers are thick, fleshy, many petalled and rich in color. Besides white, they run the scale of harmonies from yellow to vermilion, with variegations of these hues. There are single and double varieties. The latter, especially the mottled type known as the Grenadier Legrellii, of which there is a lovely example in the Cathedral Garden, serves mainly a decorative purpose.

The fruit is rather colorful and large, attaining the diameter of an orange of medium size. The pulp produces a bright, deep crimson liquid. Some types are very sweet, while others have juice of a more acidulated nature—these are termed "subacids". The most popular variety in our Louisiana gardens is a subacid form known as the Spanish Ruby, said by authorities to be the best of its kind. It is cultivated for fruit as well as attractiveness. In Spring, Jackson Square flames brightly with its warm, rich blossoms. The Spanish Ruby is indeed a radiant gem!

The pomegranate tree is deciduous. During the inflorescent stage, it is highly ornamental—one day it is crisp, dry twigs, the next a mass of tiny crimson buds. Over night it has burst into a blaze of color. Requiring little attention, this plant thrives in all tropical and semi-tropical climes. In its native Asiatic haunts, it grows even in the high altitudes of the Himalaya Range. On the Pacific Coast, the dwarf East Indian varieties are developed for hedges. As it can not endure a temperature below freezing, in the North, the pomegranate is a potted, hothouse plant. In height, this tree may achieve any size from six to as many as twenty feet, but it is only in the South that it acquires the bushy physical state so familiar to Louisianians.

In our soil, pomegranates flourish beautifully, adhering to life with great persistency. On former plantation sites and deserted homesteads, long after houses have disappeared and families scattered, the Punica Granatum in their one-time gardens blossoms on in splendor—reflecting the glory of the ages. Moses saw it and was well pleased. Solomon wove it into poetic comparisons to fall upon the pink ears of favored harem ladies. In the Punic Campaigns, it kept step with the Carthaginians and saw the downfall of Hannibal, greatest of ancient warriors. It stood guard on medieval Spanish staircases, and followed fearless explorers who faced death and disaster in unknown lands. A witness to great discoveries, bloody buccaneer battles, terrific fever sieges, charming courtyard romances, at last, it achieved

(Continued on Page 38)

Mirandona Bros.

311-13 S. Peters St.

Raw Furs and Alligator Skins

Phone MAin 2056 **New Orleans, La.**

Make the

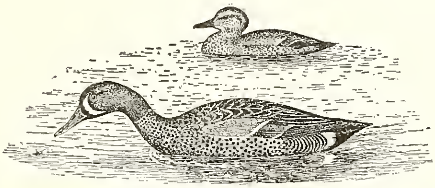
MAJESTIC HOTEL

Your Home When in Lake Charles, La.

You Will Be Pleased with the Service

The Birds Are Going South

Radio talk by Dr. T. Gilbert Pearson, President, National Association of Audubon Societies, delivered during the Conservation Day program of the National Farm and Home Hour over a coast to coast NBC network on Friday, August 24, 1934.



"Blue-winged Teal"

LADIES and Gentlemen of the radio audience:

The great southward movement of the bird population of the Northern Hemisphere will soon be under way. In fact it has already begun, for members of the sandpiper family are now streaming down the beaches of the Atlantic and Pacific Coasts.

"Chimney Swift"

One of the most amazing characteristics of wild birds is their marvelous instinct for traveling. Fish migrate, so do various mammals, and even some butterflies, but for long distance movements no group in the animal kingdom is comparable to the birds.

Early August is the time of molting. With few exceptions the birds then stop singing. We do not see many of them. The feathers are dropping out and new ones appearing. This probably is attended with uncomfortable sensations and they are prone to keep out of sight. Physically, it is undoubtedly their most unhappy month of the year. But now that the new coats of feathers have been acquired their movement southward begins.

With some species migration is not extensive. In California many simply move down from the higher ranges of the mountains to the low-lands where they pass the winter. Others, like crows, experience only a general southward movement for perhaps a few hundred miles. Thus those in Canada move into the northern states where they take the place of the crows that have spent the summer here, and which in turn move farther South. Even woodpeckers migrate. In some sections numbers of flickers, or yellowhammers, may be seen feeding on the ground with scattered flocks of robins as both work their way toward the land of little snow.

"Blue, Snow and Canada Geese on a Gravel Bank."

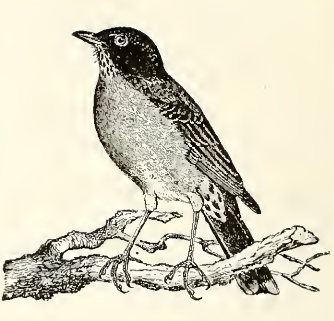
"Arctic Tern"

Small birds migrate mostly at night probably to avoid their enemies of the air. By day they rest and gather food. Of the Warbler Family alone there are eighty-two kinds in North America and most of them are highly migratory. These varied-colored gems of the forest will be traveling through the country for some weeks. They may appear wherever there are trees. My own backyard is about twenty feet one way and twenty-one feet the other with one small tree and a rose-bush and no extensive groves nearby, yet every spring and autumn, warblers come to see us. In this same little yard we also see the shy hermit thrush and the olive-back thrush from the North.

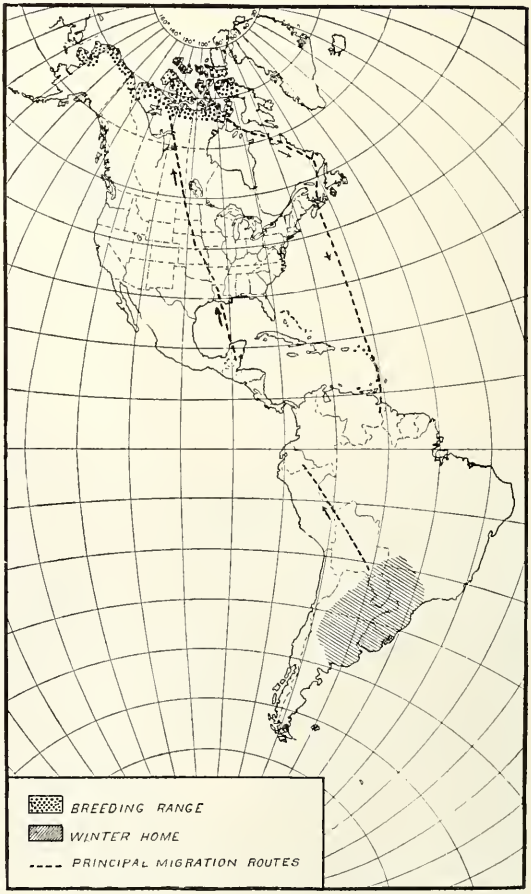
In some places migratory birds often congregate in considerable numbers. Thus on the point of Cape May, New Jersey, there is a forest where migrants collect in great numbers when adverse winds are blowing. They continue to assemble until the weather permits them to take off across Delaware Bay to the southward. To this grove also come hundreds of hawks bound southward in loosely scattered flocks. They tarry for a time as the small birds and dragon flies in the nearby marshes provide for them an abundant food supply.

"Flicker"

August also is the flocking time. Already swallows are congregating in number and roosting at night in many a reedy marsh. Soon they will be moving on to Central America. Before long chimney swifts, to the number of a thousand or more, may be seen going to roost in some large chimney. For some time purple martins have been gathering in flocks to roost in favorite groves, usually in town. Daily their numbers are augmented and in some cases a hundred thousand or more may assemble before the great host starts

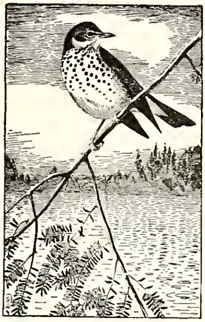


"Robin"

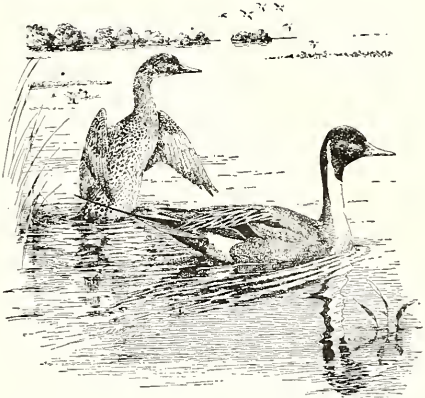


"THE WORLD'S CHAMPION MIGRANT"

"The Golden Plover nests in the far North and in the Fall flies over the ocean from Nova Scotia to northern South America, 2,400 miles without stop—the longest known flight of any bird and in Spring it returns via Louisiana and the Mississippi Valley having a migration route from Arctic America to the Argentine of 8,000, or a round trip of 16,000 miles.



"The Hermit Thrush"



"Pintail"

on its long trip to the Tropics.

There are many kinds of wild ducks and geese. Omitting a few that are extremely rare, being wanderers from other lands, we have in continental North America, fourteen kinds of wild geese, and thirty-eight varieties of ducks, nearly all of which are migratory.

A few Canada geese breed in the United States, but mostly they spend the summer north of our boundary as do all other species of this group. The great nursery of the ducks may be said to be the region which includes our northern states from Wisconsin westward and in the prairie provinces of Canada, particularly Alberta, Saskatchewan and Manitoba.

The waterfowl move southward along three main arteries of travel, one down the Pacific Coast, one following the Mississippi Valley, and the third is the Atlantic Coast flight. Many of our ducks pass on to Mexico, while the pintail and blue-winged teal go as far south as Panama.

The wildfowl of North America, formerly numbering hundreds of millions of individuals, has been steadily decreasing, especially during the past few years. This has been due primarily to three causes,—drainage of marshes to make farm lands, extensive hunting and the unprecedented drought which in the past few years has been responsible for drying up innumerable ponds, sloughs, and shallow lakes in the section of the country where most of the ducks hatch their broods. Thus, few young have been raised of recent years and only a pitiful remnant of the vast numbers that formerly existed will come South this fall.

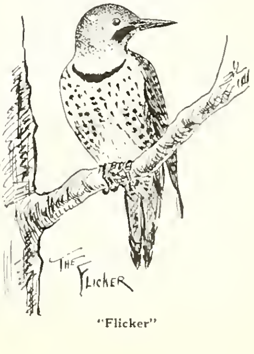
Among the migratory birds the golden plover holds a place of distinction because of the great extent of its flight. Breeding in the far northern part of this continent these birds pass the winter in Argentina or northern Patagonia.

Admiral Peary once told me that he found the nests of twenty-six species of birds on the shores of Ellesmere Land where it dips into the Arctic Ocean just four hundred and fifty miles from the North Pole. One of these was the nest of the Arctic tern. Until

(Continued on Page 45)

"Red-tailed Hawk"

"Ruby-throated Humming Bird"



"Flicker"

The Conservation of Rural Areas for Recreational Purposes

Radio talk presented by Prof. B. H. Crocheron, Director of Agricultural Extension, University of California, in the Conservation Day program of the National Farm and Home Hour over an NBC coast to coast network, Friday, August 24, 1934.

HOW do you do, Ladies and Gentlemen:

Today I am not going to discuss the saving of the great scenic features of America but rather the preservation for public use of the many small beauty spots that occur over all of our country.

The Federal government has gradually acquired as public parks and monuments, some of the most important playgrounds on the continent. The Yellowstone Park, the Yosemite Valley, the Grand Canyon of the Colorado and many other scenic areas have been set aside as national parks or monuments. The states have, to a degree, followed suit and have acquired state parks and reservations. New York and California have been prominent in this work. All this is highly desirable. It is difficult for us to picture these places as they would have been if they had passed into private hands.

It is hard to imagine the walls of the Grand Canyon used as a billboard or the Yellowstone with its geysers piped to factories. Unfortunately, however, these great national and state parks are remote from most of the population. Only a small fraction of our people ever see the Yosemite and then perhaps only once in a life time. The real recreational areas of America are those many small places in every county to which the people can turn by travel of an hour or less.

"Scenes like this are numerous in Louisiana's wooded areas"

Before the automobile became the possession of every family there were local picnic grounds to which they made a pilgrimage on foot, behind horses or by street car perhaps once a year. It was a rare opportunity to get from the town, village or farm to that grove of trees by the mill pond or to that cleft in the hills where the valley spread below. The place was fresh, green and unspoiled. If a few lunch boxes were left behind they were erased by the elements before the next family arrived. Usually these areas were in private possession but the owners placed small value upon them and were tolerant toward the occasional use of their land as a picnic place.

When the automobile became a common possession the whole picture changed. On Sundays and Holidays there were thousands seeking the out-doors where one went before. The picnic ground was littered with papers, tin cans and debris. This led the owner to exploit his hitherto valueless resource or to rule the public from his land. The local picnic ground blossomed out with a hot-dog stand, a gas station, and a dance platform or with a "no trespassing" sign.

It is high time that these places came under public ownership. So long as our natural recreational resources were greater than the demand, there was no need for conservation. Now that the demand is greater than the supply we need to save what we have.

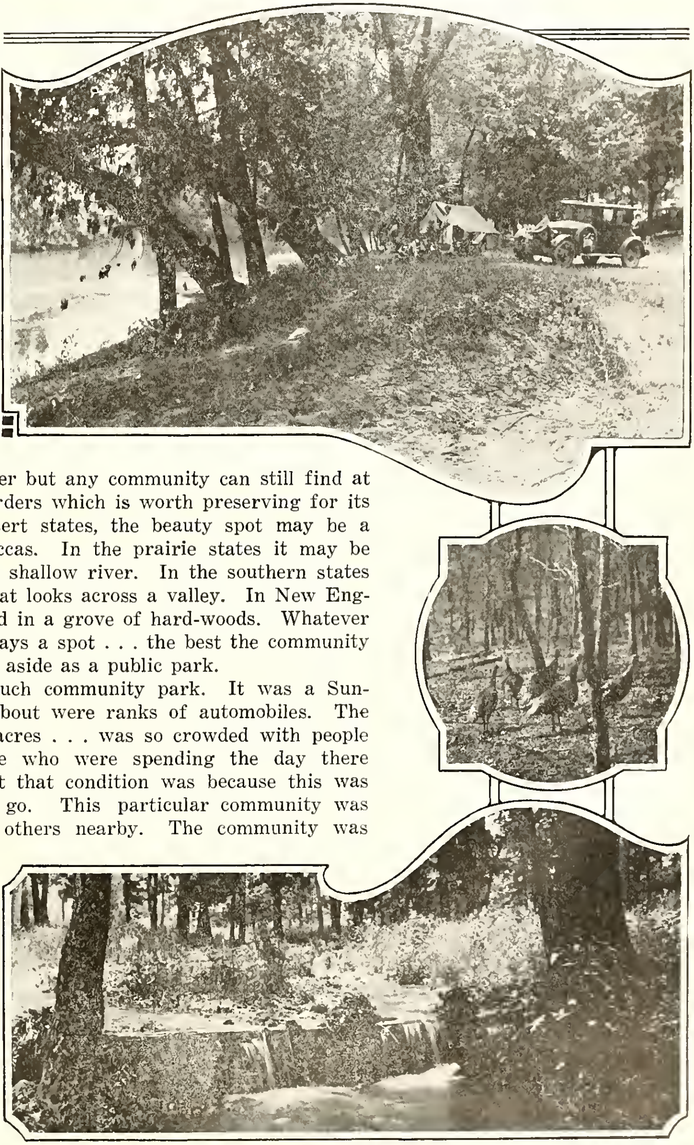
My plea is that every county in America should set aside a recreational area as a public park and that this being accomplished, Community action should follow so that there will be a community park for every one of the hundred-thousand local communities of our nation. This will usually be far from an expensive undertaking. The county park will cost less than a city auditorium. The community park will cost less than a mile of highway. These local parks should not be formalized as are city parks. Mostly they need to be left as they are, with provision to keep them so. A five or ten-cent entrance fee will provide a caretaker to make sure that the grounds are kept clean and that order is preserved.

Every rural community in the United States has some local area, used for recreation for a generation which now is in danger of passing from proper recreational use. Many of them are already gone forever but any community can still find at least one place within its borders which is worth preserving for its natural setting. In the desert states, the beauty spot may be a canyon with a group of yuccas. In the prairie states it may be a grove of cottonwoods by a shallow river. In the southern states it may be a pine wood-lot that looks across a valley. In New England it will be a lake or pond in a grove of hard-woods. Whatever the local setting there is always a spot . . . the best the community has to offer—that can be set aside as a public park.

I recently visited one such community park. It was a Sunday afternoon. All round about were ranks of automobiles. The park itself . . . just a few acres . . . was so crowded with people that I wondered how those who were spending the day there could enjoy themselves. But that condition was because this was the only park in which to go. This particular community was more forward-looking than others nearby. The community was ahead of the procession and was paying the penalty meted out to all pioneers. The crowded condition of that particular community park indicated the scarcity of such places in the country round about. That county needed not one park, but twenty such.

We are spending many millions for highways that we hope will take people to recreational areas. But there is no place to go. The highways lead nowhere except to another town.

The heritage of our forefathers was the open out-of-doors. We are going out into the open more than ever before. If we are not fore-sighted enough to preserve it, there soon will be near at hand no out-doors for us to preserve.



"Beautiful Recreation Areas"

"Louisiana Woodlands Invite the Nature Lovers"

We will have to travel farther and farther to reach a natural setting. Already many families spend most of their Sundays riding over crowded highways in order to have a brief hour at a place they can enjoy. If about your home each community had set aside its pleasant place as a public park, there would now be open to you and to others a multiplicity of recreation grounds, any one of which could be reached by a short drive . . .

Here, then, is a project for Women's Clubs, Service Clubs, Farm Bureaus, Chambers of Commerce. The name of the project? "A community park for every community in rural America."

HENRY O'MALLEY RETIRES

The retirement of Henry O'Malley, former Commissioner of the Federal Bureau of Fisheries, from service has recently been announced from Washington. Ill health is the reason for his action following thirty-seven years of active and notable work in the United States fisheries service. Mr. O'Malley was succeeded by Commissioner Frank T. Bell in 1933, and thereupon assumed charge of Pacific Coast work.

WESTWARD FROM CANAAN

(Continued from Page 32)

a quiet, peaceful, uneventful existence in your backyard and mine. The pomegranate may not have much of a history, may not even be worthy of investigation, but, as Edgar Guest would say, "it's done a heap o' living!" After all, what does it matter who brought the tree here? It is with us, adding its touch of luscious, golden loveliness to the tropic richness of our old Louisiana gardens—from time immemorial a lure to lovers of beauty, to Solomon, Wisest of Kings, even as to you and me!

BIBLIOGRAPHY

Bailey, L. H. Cyclopedia of American Horticulture.

Biever, Rev. Albert J., S. J., The Jesuits in New Orleans and the Mississippi Valley.

Bushnell, David I., The Choctaw of Bayou Lacombe (Bulletin No. 48 Bureau of Am. Ethnology, Smithsonian Institute).

Gray and Thompson, Agriculture of the Southern United States to 1860.

Historical Sketch Book and Guide to New Orleans, 1885.

Historical Society Publication, V-84-87 Early Census Table of Louisiana.

Lady's Book of Flowers and Poetry (Middle 19th Century).

Lozieres, Baudry de, Voyage a La Louisiane (1794-98).

Numerous Standard Encyclopedias.

Small, John K., Manuel of the Southeastern Flora.

Swanton, John R., Source Material for the Social and Ceremonial Life of the Choctaw Indians (Bulletin 103, Bureau of Am. Ethnology, Smithsonian Institute).

The Bible (Douay Edition).

Credit for assistance in compiling this article is given to the following:

Miss Marguerite Renshaw of the Howard Memorial Library.

G. L. Tiebout, Extension Horticulturist, L. S. U.

The New Orleans Public Library.

The Library of Loyola University.

New Orleans Stamp & Stencil Company, Inc.

Rubber Stamps, Stencils, Marking Devices

RAymond 2960 330 Camp St.

CRescent 1101 CRescent 1102

OZONE COMPANY, Inc.

MINERAL WATER AND COOLER SERVICE
PERFECTION DISTILLED WATER

Press and Marais Sts. New Orleans, La.

Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

HOW YOU CAN BECOME A NATURE GUARDIAN
YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Club be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card postpaid, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets, and other literature.

This is all free, and is carried on with the purpose of instilling in the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has been made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

EDITORIAL

MY DEAR GUARDIANS:

One of the greatest bird lovers of modern times states emphatically, "The hope of the world is more love and education and less bayonet point compulsion."

Believing that this statement is fundamentally correct, the Louisiana Department of Conservation places great emphasis on the results of the years of training in the protection of wild life that each Nature Guardian undergoes.

The boy who builds a bird house, plants a tree or makes a collection of leaves or wild flowers is going to think twice before he ruthlessly destroys the beautiful natural things about him.

He will realize that the real sportsman does not slaughter, but kills only what his conscience and the law allows, so that the remainder may be spared for another time or another person.

It has often been said that the child of today is the citizen of tomorrow. Our greatest hopes for efficient and effective future conservation in Louisiana rest upon the Nature Guardians who are today learning how wild life protection effects the commercial, industrial and economic activities, in general, of their State.

Some of these Nature Guardians will soon be our legislators, game wardens and Federal agents, and with the knowledge gained in the Nature Guardian Clubs they will be familiar with the natural resources of Louisiana and will understand the necessity for their adequate protection.

We hope that each school in the State will have an earnestly enthusiastic Club this year. God has showered His precious gifts on Louisiana. Is it not our duty to cherish and protect them? Teachers, there is no better way to help in this great work of protection than by teaching CONSERVATION day by day in the school room. We hope much from the Clubs this year. With best wishes for a happy school session.

THE EDITOR.

Here is a letter that is two-fold in interest! It is quite a fine letter in itself, and besides being that it contains an interesting account of one of our Louisiana birds—the Red-Winged Blackbird:

New Orleans, La.,
August 2, 1934.

Dear Editor:

It has been quite some time since I last wrote you, but I am going to make up for lost time. I know that the members of the Club are interested in birds so I am going to tell you of a bird that is well known to most every one—the Red-Winged Blackbird.

This bird is an inhabitant of the reedy marshes throughout almost all of North America, varying slightly in size, form and color according to regions, and is therefore divided into different species. On the Pacific Coast there are two different species—the Bi-colored and the Tri-colored Blackbirds.

The male, in glossy black plumage and scarlet epaulettes or badges, is very conspicuous about his haunts, and if these are invaded he greets the invader with loud cries of protest. He often gives his song a rich "O-Ka-Lee", as he sails downward on spread wings.

His mate is smaller and different in color—above, brown; below, white streaked with black. Her nest is usually built a few feet above water in a bush or tree and the four or five eggs are bluish white, curiously scrawled with black.

Well, Nature Guardians, this is about all the information I can give you on the Red-Winged Blackbird. Next time I write I shall tell you of another bird. Hoping to hear from some of the Nature Guardians, I am,

Sincerely yours,
EDURNA CHAGNARD.

I wonder how many Guardians can answer all of these questions:

1. What is the tree whose bloom is the State flower?
2. A game fish and something the tree produces?
3. To languish?
4. The seashore?
5. A stale joke?
6. A small gulf?
7. A devouring insect?
8. A country in the Orient?
9. What is left when wood is burned?
10. Not the younger?

Won't some one take pity on George and write him a nice long letter? Read what he says:

Jennings, La.,
August 30, 1934.

Dear Nature Guardian Editor:

I joined this Club when I was in the Second Grade. Now I have passed to the Fifth Grade. I have been doing all I should do in guarding the birds and animals. I've got into many a fight doing it, too. I am interested in the Club, and I want to get some letters from the Guardians.

Your Nature Guardian Member,
GEORGE GR. LAMBOUSY.

I am glad George is such a faithful Guardian. I like a boy who stands up for what he thinks is right.

THE ROBIN

Once there was a Robin
Lived outside the door,
Who wanted to go inside
And hop upon the floor.
"Oh, No!" said the mother;
"You must stay with me;
Little birds are safest
Sitting in a tree."

"I don't care," said Robin,
And gave his tail a fling;
"I don't think the old folks
Know quite everything."
Down he flew, and kitty seized him
Before he'd time to blink.
"Oh!" he cried, "I'm sorry!
But I didn't think."

We are getting quite a group of members from Missouri. We are glad to make Leonard an honorary member.

4645 Dublin Ave.,
St. Louis, Mo.

Dear Editor:

I have been reading the "Louisiana Conservation Review" which is a mighty interesting magazine, for some time, and I am interested in your Nature Guardian Club.

If it would be all right for me to join—I live in the State of Missouri—I would like to very much. Please send me an application card if I can join.

I am a taxidermist and I am well informed about the necessity for conserving wild life. I

Madison Lumber Company
(DENDINGER, INC., OWNER)
721 S. Claiborne Ave.
"The Department Store of Building Materials"

CHARLESTON HOTEL
Lake Charles' Newest Fire Proof, 175 Rooms, All Baths, Running Ice Water, and Ceiling Fans
LAKE CHARLES, - - - LOUISIANA

am in the second year of high school, and would like to hear from other Guardians.

Yours very truly,
LEONARD KUCHA.

Here comes a letter from members of that enthusiastic Club at Franklinton:

Franklinton, La.,
August 2, 1934.

Dear Editor:

I must first say, "Thanks for printing our letter." At the time we wrote it we didn't have the slightest idea that it would be published. We hoped you would find time to answer our letter, but we know how busy you are and so we are writing to you again.

We, the Nature Guardians of Franklinton, are planning to come down to see you all, and we want you to show us the whole Conservation Department. We haven't decided on the exact date yet, but we'll let you know later.

Our scrap books were a great success and we hope to bring at least one to show you.

With love,

Two of your eager Nature Guardians,
MARGUERITE AND JEAN MCGEE.

We are impatiently waiting for your visit! The latch-string is always out for any and all Guardians.

I have several letters asking for Nature Guardian badges or pins by members who have lost theirs. I do not like to refuse such requests but you can readily see that it is impossible for us to send duplicates. I believe the best way for all Guardians to do is to leave the badges in the care of the teacher or of the Senior Guardian and only wear them on the day when the Club meetings are held or just at the Nature Guardian meetings. It would be a fine thing if the buttons could be worn all the time but it is better to have a badge on occasions when it is really necessary than to wear it for a few days and then be without it when it is needed. What do the Guardians think about this?

EASTMAN, GARDINER & COMPANY
LAUREL, MISSISSIPPI
Manufacturers of
Southern Yellow Pine and Hardwood Lumber and Timber, Veneer, Oak Flooring and Box and Crate Shooks.

CONSERVATION OF LOUISIANA'S MINERAL RESOURCES

(Continued from Page 19)

they are too hopelessly involved, too full of repetitions, to permit of full and intelligent interpretation. The many oil, and pollution laws, should be simplified and re-enacted into one law setting forth conservation requirements in unmistakable terms."[132]

During the year 1926, the Division of Minerals received the sum of $87,500.00 from the State Treasury and expended some $98,490.16. The following year $108,333.31 was received and the expenditures amounted to $110,434.94.[133]

With the gradual change of economic conditions and with the increased production of Louisiana's mineral products, during this second era, the legislature enacted drastic regulations to prevent waste and excessive use of its petroleum and natural gas resources and appropriated funds for the extension of the services of the Division of Minerals so as to enforce these regulations. Measures were enacted so that the State and Parish Governments would derive a fair revenue from the severing of their mineral resources. As early as 1920 the severance tax and other taxes on industries severing and utilizing the raw mineral resources of Louisiana had become one of the most important sources of revenue for the State and some of the Parish Governments. Although the Department of Conservation had evolved into a complex organization by the year 1918 it was not competent to undertake all supervision and investigation which were brought about by the rapid increase in the development of its mineral resources during the beginning of this second era. This condition resulted in a reorganization of this Division which ultimately increased its usefulness and goal of achievement. The Department of Conservation through its Division of Minerals has been entirely responsible for the administration of conservation laws relative to minerals. This study has attempted to portray the development of the Department of Conservation from the year 1918 to 1928. Subsequent to 1928 the Department has increasingly widened its scope of activity, particularly in the field of scientific research which will be shown in the next installment of this study.

---

[132] *Ibid.*, p. 181.

[133] *Ibid.*, p. 430.

COMPLIMENTS
FROM A
FRIEND

A Special Message to All Duck Clubs Concerning the 1934-35 Waterfowl Seasons

SHOOTING DATES: You and your associates will be interested in the attached summary giving the waterfowl hunting seasons this fall. These are official dates as approved by President Roosevelt on August 20.

This new plan is an experiment. In some quarters there seems to be considerable dissatisfaction with it, while elsewhere the new regulations have met with widespread approval. Only a fair trial will demonstrate whether the rest-day plan on a federal basis is wise, and to the best interests of both the waterfowl and the sportsmen.

BAG-LIMITS: The bag-limit on ducks this year was continued at *12 per day in the aggregate*, with only five in the aggregate of redheads, canvasbacks, eider ducks, greater and lesser scaups (bluebills), ringnecks, the three teals, shovellers and gadwalls. There was considerable sentiment for closing the season entirely on the diving ducks, and the bag was reduced on the species indicated. The limit in possession is the legal limit for two days.

The bag on geese and brant remains at 4 per day and 8 in possession, with no brant shooting on the Atlantic Coast.

SHOOTING HOURS: *Shooting will start at sunrise each shooting day* instead of a half hour before sunrise as in the past, and will end at sunset, except on baited grounds. (See below) The 12 o'clock opening hour on the first day of the season was eliminated.

BAITING PERMITS: The new regulations contain a provision designed to control the principal abuses of baiting and feeding migratory waterfowl and thus further to protect the birds. The control provided for is a system of permits, *Issued by the U. S. Biological Survey, Washington, D. C.* Where state laws do not prohibit baiting, permits will be issued to applicants conditioned upon provision that migratory waterfowl must not be shot on baited premises after 3 P. M., nor while resting on water or land.

Each baiting permittee must agree to keep an accurate record of the number of persons shooting on the premises, and of the species and number of each species of waterfowl killed on the premises during the open season, the number of blinds employed, the numbers of birds killed at each blind each day, the kinds of food employed, and the intervals of feeding. This information must be reported to the Biological Survey within one month after the close of the season.

CONTINUE FEEDING: If you feed waterfowl during the hunting season, by all means continue it as long after the season as may be necessary to provide the birds with ample food. Heavy feeding is especially necessary when sudden freeze-ups occur in normal wintering areas. Spring feeding helps to hold over more breeding birds than would otherwise stay, and brings others back in the fall in greater numbers.

MAINTAIN REFUGES: Every hunting club with enough acreage to do it should set aside one or more *absolutely inviolate refuges* for waterfowl, where the birds are never disturbed except as necessary to supply food. Even small refuges are better than none at all. Try it and you will be surprised. The more new water areas you create the better.

RAISE DUCKS: A number of duck clubs are now raising annually and releasing almost as many ducks as they kill during the season. Some of them even more. The May-June, 1934, issue of AMERICAN GAME (copy free if you want it) contains a special article by Dr. Lincoln of the Biological Survey concerning the fine black duck rearing work of the Flanders Club on Long Island. Certain species of wild ducks *can be so raised that they will be real wild ducks*, and not just barnyard puddle ducks. It is simply a matter of handling the youngsters properly.

KILL DATA NEEDED: There has for years been a crying need for more complete information on the numbers of waterfowl killed throughout the country, and whether you apply for a baiting permit or not *we strongly urge that you keep a record of the species and the numbers of each killed by your club*, and send such data to the Biological Survey at the end of the season.

DUCK STAMPS REQUIRED: The new Duck Stamps will be required this year for the first time. *These beautiful new stamps are now available at postoffices* in all cities of 2500 or more, at all county seats, and at a number of other designated postoffices. Every waterfowl hunter over 16 years of age will be required to carry this stamp. The funds derived from the sale have been set aside by Congress, without further appropriation, to be used for purchasing or leasing marsh and water areas for refuges and breeding grounds.

The stamps must be affixed adhesively to a state hunting license, except stamps purchased by

FEDERAL DUCK SHOOTING SEASONS 1934-35

States	Shooting Days	Seasons	No. of Weeks
Ala.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
Ariz.	Saturday and Sunday	Oct. 6-Jan. 13	15
Ark.	Tuesday, Wednesday, Thursday, Friday, Saturday	Nov. 6-Dec. 15	6
Calif.	Saturday and Sunday	Oct. 20-Dec. 30	11
Colo.	Monday and Tuesday	Oct. 1 and 2	
	Saturday and Sunday	Oct. 6-Jan. 6	15
Conn.	Thursday, Friday, Saturday	Oct. 18-Dec. 22	10
Dela.	Thursday, Friday, Saturday	Oct. 25-Dec. 29	10
Fla.	Thursday, Friday, Saturday, Sunday	Nov. 22-Jan. 11	7½
Ga.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
Ida.	Saturday and Sunday	Oct. 6-Jan. 13	15
Ill.	Saturday and Sunday	Oct. 6-Jan. 13	15
Ind.	Thursday, Friday, Saturday	Oct. 4-Dec. 8	10
Iowa	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 10-Nov. 18	6
Kans.	Thursday, Friday, Saturday	Oct. 11-Dec. 15	10
Ky.	Friday, Saturday, Sunday	Nov. 2-Jan. 6	10
La.	Friday, Saturday, Sunday	Nov. 2-Jan. 6	10
Me.	Thursday, Friday, Saturday	Oct. 4-Dec. 8	10
Md.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
Mass.	Thursday, Friday, Saturday	Oct. 18-Dec. 22	10
Mich.	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 3-Nov. 11	6
Minn.	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 3-Nov. 11	6
Miss.	Tuesday, Wednesday, Thursday, Friday, Saturday	Nov. 6-Dec. 15	6
Mo.	Friday, Saturday, Sunday	Oct. 19-Dec. 23	10
Mont.	Friday, Saturday, Sunday	Oct. 5-Dec. 9	10
Neb.	Solid Month	Oct. 16-Nov. 14	Month
Nev.	Monday and Tuesday	Oct. 1 and 2	
	Saturday and Sunday	Oct. 6-Jan. 6	15
N. H.	Friday, Saturday, Sunday	Oct. 5-Dec. 9	10
N. J.	Thursday, Friday, Saturday	Oct. 18-Dec. 22	10
N. Mex.	Saturday and Sunday	Oct. 13-Jan. 13	14
N. Y.	Thursday, Friday, Saturday	Oct. 4-Dec. 8	10*
L. I.	Thursday, Friday, Saturday	Oct. 25-Dec. 29	10
N. Car.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
N. Dak.	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 3-Nov. 11	6
Ohio	Thursday, Friday, Saturday	Oct. 4-Dec. 8	10
Okla.	Saturday, Sunday, Monday	Oct. 20-Dec. 24	10
Ore.	Friday, Saturday, Sunday	Oct. 19-Dec. 23	10
Penn.	Thursday, Friday, Saturday	Oct. 18-Dec. 22	10
R. I.	Friday, Saturday, Sunday	Nov. 2-Jan. 6	10
S. Car.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
S. Dak.	Friday, Saturday, Sunday	Oct. 5-Dec. 9	10
Tenn.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
Tex.	Friday, Saturday, Sunday	Oct. 26-Dec. 30	10
Utah	Friday, Saturday, Sunday	Oct. 12-Dec. 16	10
Vt.	Friday, Saturday, Sunday	Oct. 5-Dec. 9	10
Va.	Thursday, Friday, Saturday	Nov. 8-Jan. 12	10
Wash.	Friday, Saturday, Sunday	Oct. 19-Dec. 23	10
W. Va.	Solid Month	Nov. 1-Nov. 30	Month
Wis.	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 3-Nov. 11	6
Wyo.	Wednesday, Thursday, Friday, Saturday, Sunday	Oct. 3-Nov. 11	6

*Except Long Island.

collectors. We are informed that so long as the stamps are pasted down at one corner or along one edge the law will be complied with. This will simplify removal of stamps at the end of the year for permanent collections.

Buy as many stamps as you can afford, and urge your friends to do likewise.

LAW ENFORCEMENT: The U. S. Government and the several states will make a concerted effort to enforce the law this year, but they must have the aid of everyone interested in future shooting.

We especially urge that you and your associates *go the limit to stop any abuses* in your shooting area, such as night shooting, commercial slaughter and bootlegging, and pot shooting on land and water. If you do not care to report to your nearest warden, *please write or wire* the American Game Association and the information will be relayed at once to the proper authorities. *The source of such information will be kept strictly confidential if you so request.*

THE THIEVES MUST BE STOPPED! It is imperative that abuses of the past be eliminated. To condone them reflects seriously upon the moral

Myles Salt Co., Ltd.
"A Grade For Every Need"
BAY CHEMICAL COMPANY, INC.
(Subsidiary Myles Salt Co., Ltd.)
CHEMICALS . . . and . . . FERTILIZER
1007 Camp Street **New Orleans, La.**

courage of the law abiding sportsmen in the same vicinity. The waterfowl supply can't stand legitimate hunting and commercial slaughter too. In our opinion the latter accounts for more birds in certain areas than are killed by honest sportsmen. *Please Help Stop These Terrible Leaks!*

AVOID WASTAGE: It behooves every waterfowl hunter to be conservative this year, and to see to it that his friends do likewise. Retrievers should be used wherever possible to reduce loss of cripples. *All avoidable wastage of ducks must be checked.* Wasting ducks this year will be a crime!

REACTIONS TO REGULATIONS: The American Game Association will appreciate your reaction to the new regulations. We especially urge you to watch developments during the season, then write us your further reactions after the close of the season so that we may be governed accordingly when regulations are being considered for next year.

Yours for more and better sport,
AMERICAN GAME ASSOCIATION,
Washington, D. C.
SETH GORDON, *President.*

"HUNTER'S MOON"

(Continued from Page 1)

stead of a single unit of time. This seems, on consideration, a most desirable change. Continued droughts affecting the breeding grounds of our most important ducks have so reduced the numbers of water fowl that rigid restriction of hunting is necessary. Bag limit and season were two means of giving this needed protection to the diminished water fowl. A short single season would undoubtedly have denied to many the privileges of hunting whereas the decision to provide a long series of week ends will give to everyone the opportunity to arrange a time afield.

Louisiana established the first public hunting grounds in the United States. An area of almost sixty thousand acres of the finest duck country in the continent is dedicated to this purpose, and is provided with a commodious and comfortable clubhouse, and with every necessary accessory for successful duck hunting. The use of these hunting facilities, superior as they are to the finest that the most wealthy hunters of the North could command, are available to every one at a most nominal cost. Not only are ducks of a wide variety available, but also geese of several species occur in enormous numbers in this area.

The progressive restriction of hunting by reduction of both bag limit and season should meet with the fullest approval of every good sportsman. It is true that we have gone far from the old days of spring and fall shooting and unrestricted bag limit and of market hunting, but it has been completely necessary that we go far. The agricultural changes affecting the areas wherein breed our most important ducks, the increase in hunting efficiency due to cheap guns and cheap harder hitting ammunition, together with the broad and tremendous increase of what is evidently a natural cycle of weather, drying up some of the finest duck nesting areas in the North, all these have contributed to a terrific reduction of our water fowl resources. Our game constituting a source of such pleasure and of such additional monetary value to the State must, be guarded if it is to be preserved. Such measures alone can save North American game and it is the responsibility, and should be the pleasure, of every true sportsman strictly to observe and accord with all such measures.

KNOW LOUISIANA

BY AGATHINE H. GOLDSTEIN,
Louisiana Tourist Bureau

NATCHITOCHES

The city of Natchitoches is like a moving picture film. It depicts the history of Louisiana as truly as a camera projects a lesser story.

As the oldest town in all of the Louisiana Purchase, and reputed the third oldest in all of the United States, Natchitoches has gained an undisputed niche in history. No volumes are required to acquaint the alert with the data comprising the events which have made out of this first permanent Louisiana settlement one of the most modern towns of today. Throughout every section of the city are the concrete evidences of its historic lore and development. Glowing facts attest substantially to the color and the romance of the past.

In a few other cities do the old and the new so co-mingle. The obsolete and the modern seem to supplant and to supplement the other. All told, there is an atmosphere so unique about the entire metropolis that in no other section can such an influence be noted. Too, there is a traditional pride of ancestry in the residents of Natchitoches. Zealously conscious of the age and historical value of their birth-place, they have an inherited appreciation of their surroundings. Because of this deep and profound feeling, they have a hauteur born of aristocracy, never to be found lacking in the "first families" of any worthwhile communities.

The general appearance of the town is conclusive proof of the fact that Natchitoches has had

American Bank & Trust Co.
200 Carondelet Street
New Orleans, La.
NO RESTRICTIONS
Licensed by Authority of the U. S. Government
Member Federal Reserve System
WE HAVE NO BRANCHES

IMPORTERS AND EXPORTERS—COMMISSION AGENTS
Quong Sun Co., Inc.
Dried Shrimp and Fish Packers
525-27 St. Louis St. New Orleans, La., U. S. A.

a long and colorful career. Established in 1714, by Louis Juchereau de St. Denis, during the reign of Louis XIV of France, the site has been favored with every influence pertinent to Louisiana during the past two centuries. The name of the town is from the Indian, the first of the earliest settlers, and translated, means "chestnut eaters." The influx of the French and the Spanish is immortalized in the architectural designs of some of the oldest buildings. The Civil War and the Reconstruction days have left their marks in the ruins of old forts, breastworks, statues and monuments surrounding the city. Besides there are a thousand and one other features of interest sprinkled thereabouts—all to tell the history of Louisiana as no volume has ever done.

But never let it be said that Natchitoches allows itself to dwell entirely in its intriguing past. While it does revel in those never to be forgotten days of Louisiana's earliest history, it keeps abreast with the modernities of today. It is an immaculate, enterprising and bustling city, attracting people of diverse tastes and pursuits. Its history and its landmarks, the general culture and quaint atmosphere appeal to many.

At no other place in the South is there such a unique Art colony. Splendid fishing is afforded in Cane River lake—the artificially dammed bed of Red river. All converging interstate highways make Natchitoches easily accessible.

In the center of an exceedingly productive farm area and surrounded by cotton growing sections, Natchitoches is typically a good "cotton town." It also boasts of the sole normal college in Louisiana, the largest in the South.

There are landmarks aplenty to attract the visitor. Old homes in their glories of decaying antiquities. Others renovated and repaired to keep up with the styles and conveniences of today. Structures modern to the last word. Churches of all denominations and architectural designs. Crooked, narrow streets, winding and of concrete. Cemeteries where the dead have been resting for more than two centuries. Statues, monuments, buildings, redolent of the colorful history of all of Louisiana. And many other features to add to the interest and delight of the State's oldest city.

Thus the old and the new remain side by side. The cultural with the commercial, where the romantic and the practical meet.

The final result is Natchitoches. A town never to be duplicated. Where all of the yesteryears and tomorrows entwine themselves into one galaxy of present endeavors and accomplishments.

THE BIRDS ARE GOING SOUTH

(Continued from Page 35)

recently it was not known over what lands and seas these birds journeyed in autumn to re-appear along the Antarctic Continent where they spend the period of the southern summer. However, it has lately been discovered that the Arctic terns that breed on the Atlantic Coast of the United States and Canada fly northeastward in autumn along the coast of Labrador. Near the southern end of Greenland they converge with the stream of terns coming down Davis Strait from the Arctic regions. They cross the ocean to Europe and then, passing down the coasts of Africa, reach the Antarctic.

To my mind the most amazing flight taken by any North American bird is that of the little ruby-throated hummingbird. It crosses the Gulf of Mexico twice a year flying each way over water for fully six hundred miles,—and the bird weighs only a tenth of an ounce. A large aeroplane that could go as far in proportion to its weight as the hummingbird, when it leaves Louisiana and flies to Yucatan, would be able to circle the earth at the Equator about one hundred thousand times.

Why do birds migrate? There are many conflicting theories, that to me all sound plausible, which is but another way of saying that the question is too hard for me to answer.

RENTAL BATTERIES BATTERY SERVICE
ELM SERVICE STATION
Elm and Lowerline Streets
Auto Repairs—Generators—Ignition Work
Cars Washed, Stored and Greased
Crank Cases Drained and Refilled
E. L. MERTZWEILLER, Manager
Phone: WAlnut 2992

RAymond 3255
FRANKLIN PRINTING COMPANY
Printing-Engraving-Lithographing
Stationery
"RULING AND BINDING A SPECIALTY"
627-29 Poydras Street
New Orleans
JOS. B. DAVID
President

Lacoste Fur Co., Inc.
Raw Furs and Alligator Skins
316-320 Gravier St. 300-306 Tchoupitoulas St.
NEW ORLEANS, LA.

Department Publishes Unique Bulletin

The Department of Conservation has just published a Bulletin that is unique in the history of Louisiana Conservation. Entitled "Louisiana Conservation (Over Radio), a Collection of Brief Addresses", this well illustrated volume of 258 pages brings together a series of carefully considered discussions of Louisiana's conservation problems. These addresses form two series. The first series is composed of ten discussions of conservation matters by members of the Department of Conservation. The second series is made up of eleven addresses delivered on the occasion of the establishment by the then Governor, his Excellency Governor Huey P. Long, by proclamation of the first Conservation Week to be so ordained in the United States. Certain of these addresses are given by conservationists outside the personnel of the Department of Conservation itself, such speakers including the President of each of the three most important universities in the State of Louisiana, together with others notable for their interest in furthering the cause of Louisiana Conservation.

Not only is "Louisiana Conservation (Over Radio)" unusual in the variety of its contributors, it is also of special interest because of the breadth of Conservation material presented in it. Here, the general conservationist as well as those interested in education, the exploitation of oil and other minerals, in forestry, in sport or commercial fishing, in oysters, in the shrimp industry, all alike will find information useful to them. The new Bulletin thus serves in a manner not hitherto accomplished, the purpose of presenting in considerable breadth, yet at the same time with accuracy of detail, a survey of Louisiana Conservation that should well become a useful source book for everyone engaged in teaching the gospel of Conservation in the State of Louisiana.

The first series of radio addresses were given over Station WWL, in response to an invitation extended by the Young Men's Business Club of New Orleans through their President, Dr. Leo J. Schoeny. The titles of these ten addresses are as follows:

New Orleans, Conservation Center of the Southland, by James P. Guillot, Secretary of the Department of Conservation.

Fishing in Louisiana, by J. N. Gowanloch, Chief Biologist of the Department of Conservation.

Recent Mineral Developments in Southeast Louisiana, by C. K. Moresi, State Geologist of the Department of Conservation.

Forestry in Louisiana, by V. H. Sonderegger, State Forester and Director of the Division of Forestry, Department of Conservation.

Our Louisiana Wild Life and Sanctuaries, a National Asset, by James P. Guillot, Secretary of the Department of Conservation.

The Louisiana Oyster, Its Habits and Value, by J. N. McConnell, Director, Division of Oysters and Water Bottoms of the Department of Conservation.

The Relation of Education to Conservation, by Mrs. E. V. Cottman, Assistant Director, Bureau of Education.

The Scope, Purpose and Accomplishments of the Louisiana Department of Conservation, by James P. Guillot, Secretary of the Department of Conservation.

The Commercial Fisheries of Louisiana, by N. E. Simoneaux, Associate Editor of the Louisiana Conservation Review.

Sea Shrimp, a Great Louisiana Industry, by James N. Gowanloch, Chief Biologist of the Department of Conservation.

Part Two of the new Bulletin includes, in addition to the proclamation of the then Governor Huey P. Long, the following series of addresses:

"Education in Relation to Conservation," by the Honorable T. H. Harris, Superintendent of Education of the State of Louisiana.

"State University Extension and Conservation," by Dr. James M. Smith, President of Louisiana State University.

"Sea Fisheries and Sea Research," by James Nelson Gowanloch, Chief Biologist of the Louisiana Department of Conservation.

"Louisiana Wild Life Conservation," by the Honorable Edward A. McIlhenny.

"Salt Dome Possibilities," by Professor R. A. Steinmayer of the Tulane University.

"The Louisiana Conservation Department," by the late Honorable John Dymond, Jr.

"Science and Conservation," by Dr. A. B. Dinwiddie, President of the Tulane University.

"The Oyster Industry in Relation to Conservation," by James N. McConnell, Director of the Oyster Division of the Louisiana Department of Conservation.

"The Importance of Conservation," by the Very Reverend J. W. Hynes, S. J., President of Loyola University.

"Forest Resources and their Future Value," by Professor C. S. Williamson, Jr., of the Tulane University.

"Louisiana Minerals," by Dr. J. A. Shaw, Director of the Division of Mines and Min-

(Continued on Page 47)

ANGLER'S NOTES

By Erl Roman

Fishing and Yachting Editor of the Miami Herald

Editor's Note: We hesitate, for obvious reasons, to publish the following notes. They are reproduced, however, from the pages of the Miami Herald, for the information of our readers, as one of the many expressions of appreciation of the efforts for the preservation of the State's natural resources by the Louisiana Department of Conservation. We regret that the supply of the bulletin in question is now exhausted. With the return of prosperity the Department hopes to reprint the bulletin and resume distribution.

"Because of the evil results of the indifference of 'the man in the street,' and of misconceptions among individual citizens regarding the importance of conservation, it is necessary in the public interest, to attempt to arouse and inform people regarding the subject. The public will neither demand nor support comprehensive policies of conservation unless individual citizens—'men in the street'—are convinced that such policies are necessary to their own individual well being." This quotation, by Dr. Francis D. Farrell, president of the Kansas State Agricultural College, appearing in the eleventh biennial report of the department of conservation of Louisiana, deserves, and should receive, widespread recognition. It is especially valuable to the forces for conservation in Florida at this time for it states a fact which, while well known, is sometimes completely disregarded.

Perhaps you have wondered why this column has quoted the report of the Louisiana Conservation Department so frequently. The best reason that can be given for this is that Louisiana is noted for the excellence of its conservation work. On the other hand, if Florida's conservation department edits any items of interest in relation to the conservation of game fish this column does not know it. It has been attempted sporadically, it is true, but the usual result has been an almost complete flop—like a sky-rocket which is aimed high and fails to clear the hedge. Perhaps the closest approach Florida makes in publishing anything of a "fishy" nature is that beautiful and well-known little booklet wherein, for a stated sum, politicians may tell the voters how good they are.

In Louisiana it is different, for there they appreciate the great value of their natural resources, and more especially the value of fishing to the state as a whole. Why they should pay more attention to this resource than does Florida to its fishing is a matter for conjecture. Lord knows that the early settlers of this state had to know how to catch, prepare and cook fish or starve to death, and many of Florida's first and most prominent families, during the early days, fished to live rather than lived to fish. It is also well established that to the sport of fishing Florida owes a goodly percentage of its citizens and visitors today. One would think, with this background, attention to matters pertaining to sport fishing and conservation would be one of the main items of political interest in this state, but it is not so.

In addition to the biennial report and the issuance of a quarterly magazine by the department of conservation of Louisiana, there is published a 638-page volume under the title "Fishes and Fishing in Louisiana." It is illustrated with 168 black and white figures, two folding maps of fishing areas, and nine colored plates of important Louisiana species. This bulletin, one of the most unusual treatments of fishes and fishing ever published by any state, has received high commendation in reviews of it published in various national and scientific journals. In fact, this volume was selected as one of the only six or seven works on fishes, chosen out of all the many thousands of fish publications in the English language, for inclusion in the special science booklist of the American Association for the Advancement of Science, a list distributed throughout the world.

It is through the publishing and issuance of this volume that the state of Louisiana educates its "man in the street," thereby gaining his support, and the support of the public, in matters of conservation relating to fish and game in that state. Our late President Theodore Roosevelt touched the very heart of the necessity of protecting natural wealth when he said, "The conservation of our natural resources and their proper use constitute the fundamental problem which underlies almost every other problem of our national life." In Louisiana, and in most other states, that is already accepted. In Florida it awaits acceptance, but it will not be until each individual makes it his duty to see that it is. And now is the time to put your shoulder to the task.

o

DEPT. PUBLISHES UNIQUE BULLETIN

(Continued from Page 46)

erals of the Louisiana Department of Conservation.

The keen interest expressed by the Young Men's Business Club of New Orleans in the extremely important conservation problems of Louisiana has thus, through the cooperation and interest of Radio Station WWL, brought as a permanent record a Bulletin that, it is hoped, will serve as a source book for conservation information in the schools of Louisiana, as well as being a useful and interesting document for every citizen of the State, since everyone living in Louisiana should be, at heart, a conservationist.

COMMISSIONER MAESTRI PROMULGATES ADDITIONAL REGULATIONS GOVERNING THE CONSERVATION AND CONTROL OF OIL PRODUCTION IN LOUISIANA

Rule Number 68

It shall be the duty of any and all persons, firms, companies, or corporations, producing oil within the confines of the State of Louisiana, and transporting same by barge or tank car, to notify the Commissioner of Conservation the time and place at which they wish to elect to transfer any and all oil from their respective storage tanks to barges or railroad tank cars for shipment.

Rule Number 69

It shall be the duty of any and all persons, firms, companies, or corporations producing oil within the confines of the State of Louisiana, and transporting same by barge or tank car, to submit to the Commissioner of Conservation copy of bill of lading, as well as copy of invoice, showing to whom the said oil is being shipped or sold.

Rule Number 70

It shall be the duty of any and all persons, firms, companies, or corporations producing oil within the confines of the State of Louisiana, and transporting same by barge or tank car, to obtain from the Commissioner of Conservation, through the Minerals Division of the Department of Conservation, a permit authorizing the loading and shipment of such oil to any person, company, or corporation to whom the said oil has been sold or consigned. The said permit shall serve as a clearance for the disposition of said oil.

The foregoing rules are promulgated as regulations of the Department of Conservation, State of Louisiana, under authority of Act 127 of 1912, and particularly under Act 253 of 1924 and as amended by Act 123 of 1926. The above rules and regulations are hereby adopted and made effective October 1st, 1934, the provisions of which are to be complied with on and after October 1st, 1934.

STATE OF LA., DEPT. OF CONSERVATION
By
Dr. J. A. Shaw, *Director, Minerals Division.*
Robert S. Maestri, *Commissioner.*

COMMISSIONER MAESTRI ESTABLISHES GEOLOGICAL SURVEY

(Continued from Page 2)

Louisiana is blessed with an abundance of mineral resources, although for some twenty-four years this State had been without a geological survey. Many of the Southern States have expended tremendous sums, amounting to as much as one-half a million dollars annually, in conducting geological surveys of their respective states during past years. The present program carried out on a cooperative basis with Louisiana State University establishes a geological survey in Louisiana that is comparable to most of the surveys being conducted in other Southern States at the present time.

Without topographic maps of the entire State, it is difficult and sometimes impossible for any intelligent planning and development of the State's valuable mineral resources. It is anticipated that the geological survey will make invaluable geological information available to the public and interest the various industries which will eventually consume our raw mineral products, because it is in the combination of some of the more common industries into associated groups that there lies the greatest possibility for expansion and development of the State's mineral resources.

The School of Geology of Louisiana State University is competent and ready to undertake this investigation and is contributing by furnishing the assistance of their faculty which includes such able scientists as Dr. H. V. Howe, Director, Dr. R. J. Russell, Dr. R. D. Russell, Dr. F. B. Kniffen, and Professor B. J. Craft, and is making available their laboratory equipment and is supplying office space for this survey. In consideration of this contribution, the Commission of Conservation has appointed Cyril K. Moresi, State Geologist, who will serve as the Department's administrator with the School of Geology in conducting the survey. James M. McGuirt has been appointed assistant to Mr. Moresi and his headquarters will be in the School of Geology, Louisiana State University. In addition, the Department of Conservation is furnishing the School of Geology with funds to employ graduate students and such assistants as may be necessary to carry out this work for the scholastic year, 1934-35. For the following year, 1935-36, additional funds have been provided to employ more graduate students for this purpose. The survey has already begun conducting investigations of Cameron Parish, which Parish is located in the southwestern portion of the State. This Parish was selected because of the intensive exploration and exploitation of the petroleum resources of this area at this time. It is anticipated that as a result of the establishment of this survey, the public will have an opportunity to become familiar with the geology of Louisiana and that the research program will be accompanied by a marked increase in the development and prosperity of Louisiana's mineral industries.

Landry Memorial High School
Day and Boarding School for Boys
Directed by The Christian Brothers
LAKE CHARLES, LA.

O. W. SUHREN
Battery and Electrical Specialist
EXIDE Batteries
SPARTON HORNS
BOSCH Magnetos
CHAMPION Spark Plugs
857 Carondelet St. Phone RA. 1035
NEW ORLEANS, LA.

GREAT SOUTHERN LUMBER COMPANY

BOGALUSA PAPER COMPANY

BOGALUSA - - - - - - - - - - LOUISIANA

WM. T. BURTON

General Contractor

BOATING, TOWING, DREDGING
CLAM AND OYSTER SHELLS

SULPHUR LOUISIANA

Steinberg & Company

IMPORTERS, EXPORTERS

RAW FURS

MAin 1395 527-529 Decatur Street

NEW ORLEANS, LA.

CABLE ADDRESSES

Interfur-New Orleans; Chaitin-New York;
Sutfu, New York. Bentley's Code.

PHONE MAin 1997

INTERNATIONAL FUR MERCHANTS, Inc.

OF LOUISIANA

Affiliated with
International Fur Merchants, Inc., New York
Chaitin-Bobrow, Inc., St. Louis, Mo.
L. & W. Fuchs, Leipzig, Germany

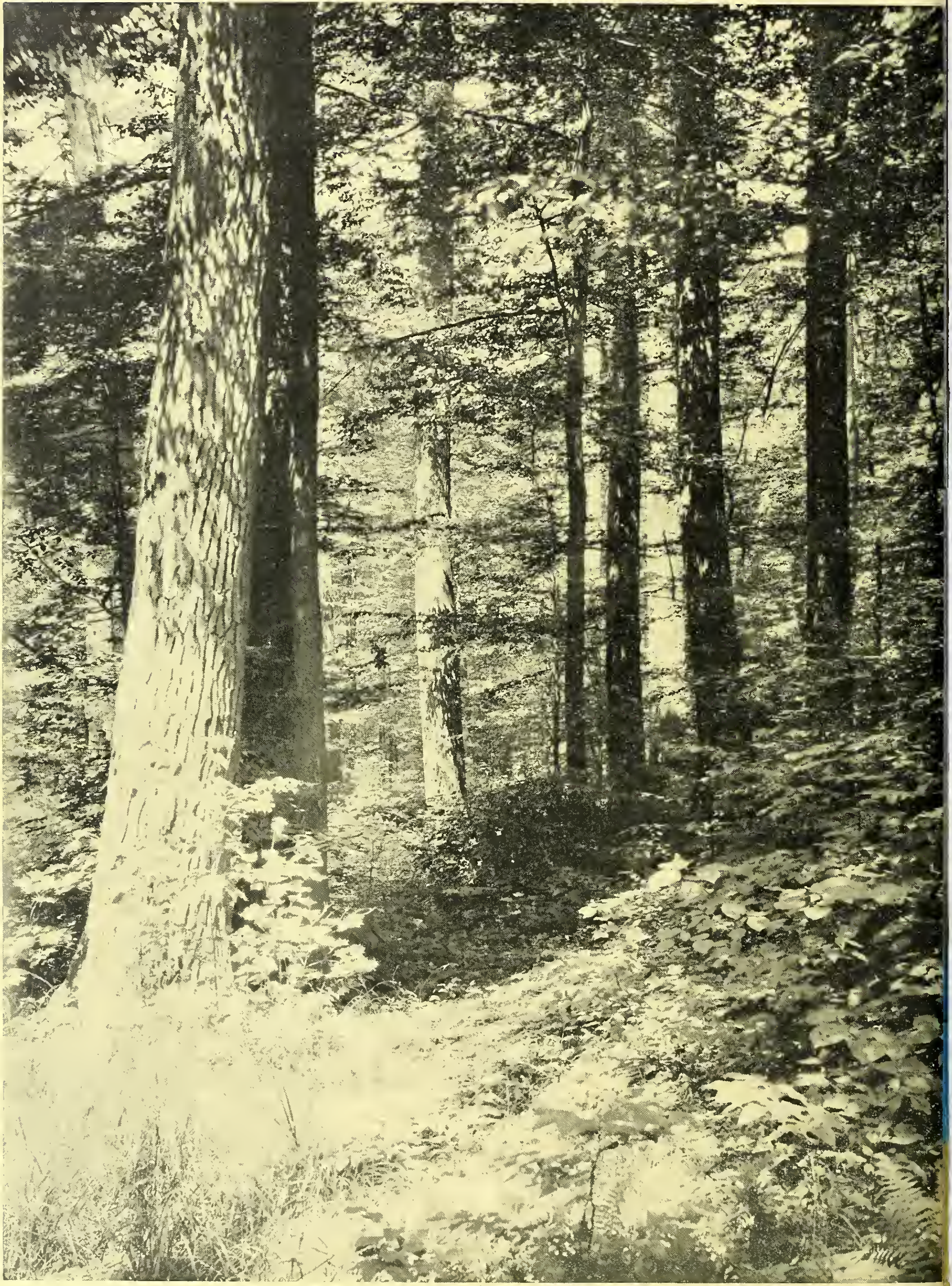
520 St. Louis St. New Orleans, La.

ALKER-DONOVAN COMPANY, Inc.

MARINE SUPPLIES
FISHING TACKLE
HUNTING EQUIPMENT

NEW ORLEANS, LA.

435 Camp Street Phones: RA. 4286-4287



In the "Thousandth Acre"—where man has scarcely set his mark—an opening among the hemlocks on Cherry Run. Here in the virgin for one is conscious of a different atmosphere, as in a great closure pillared by magnificent hemlock trunks, roofed by canopy above canopy of green need and carpeted by five centuries' fall of the same rich fabric, no longer green, but brown.

La
333
L93
v.4
1934/35
c.1

LOUISIANA ROOM

This book does not circulate

152320